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Applying the Refined Values Theory to Past Data What Can Researchers Gain?

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Running Head: Applying the refined values theory to PVQ data

Abstract

The refined theory of basic human values (Schwartz et al., 2012) divides the circular continuum of values into 19 motivationally distinct values. Research with a new questionnaire discriminated these values in 10 countries and demonstrated the benefits of the finer distinctions. We ask: Can researchers gain by applying the refined theory to the large repository of available data gathered with the 40-item Portrait Values Questionnaire (PVQ40)? How many, if any, of the more refined values can be distinguished in PVQ40 data and does this provide improved understanding of the topics studied? We addressed these questions with data from 13 countries on four continents (total N = 7352). Theory-based multidimensional scaling and confirmatory factor analyses in each country revealed several more narrowly defined values in the PVQ data. Examples from 14 countries demonstrated that these refinements can increase predictive and explanatory power.

Key words: Refined values, Portrait Values Questionnaire, value prediction, value circle, motivation

Karl Popper (1973) argued strongly that theory precedes observation. Every observation is understood in terms of a prior, often implicit, theory. Although Popper thought that theories cannot be confirmed definitively, he held that better theories replace poorer ones because they explain existing observations more effectively. The current study utilizes a new, refined values theory to explain observations that were gathered with a values instrument based on a prior, prevailing theory. We demonstrate that, by applying the refined theory, researchers can attain a richer and more nuanced interpretation and understanding of the large body of existing data gathered with the Portrait Values Questionnaire.

Two decades ago, Schwartz (1992) proposed what has become the most fully elaborated, empirically grounded, and widely used theory of basic values. The initial version of this theory (Schwartz & Bilsky, 1987) was developed in order to interpret existing data gathered with an old instrument – the Rokeach Value Scale (RVS). Schwartz and Bilsky (1987) theorized that values form a circular motivational structure. They corroborated this structure by analyzing RVS data from 1968, obtained from a representative sample of Americans (Rokeach, 1973). Having found support in the Rokeach data for the assumption that values form a motivational circle, Schwartz (1992) elaborated his theory. The new theory organized the value domain into 10 motivationally distinct, basic human values. It provided an understanding of relationships among values that had been present in the old data but had gone unnoticed. The current study builds on this example.

Schwartz and others developed a variety of instruments to operationalize this theory in adult, adolescent, and children's samples. These include the Schwartz Value Survey (Schwartz, 1992), the Portrait Values Questionnaire in 40- and 21-item versions (PVQ: Schwartz, 2003), the Picture Based Value Survey for Children (Döring, Blauensteiner, Aryus, Drögekamp, & Bilsky, 2010), and the Schwartz Values Best-Worst Scale (Lee, Soutar, &

Louviere, 2008). Research with these instruments has supported the theory in a wide variety of samples from over 75 countries, demonstrating that the theory holds near universally and is not instrument dependent. Although all 10 values were not discriminated in every study with all instruments (e.g., Davidov, Schmidt, & Schwartz, 2008), evidence for the circular structure of value relations was extremely strong. Studies by hundreds of researchers have produced a vast database of human values, available for secondary analysis.

Schwartz, Cieciuch, Vecchione, Davidov et al. (2012) noted that the central postulate of the values theory, that values form a circular motivational continuum, has been neglected in almost all values studies. Instead, researchers have largely treated the theory as a typology of 10 discrete values or of four higher order values into which the 10 values can be collapsed. They have examined associations of these discrete values with other variables. The idea of a continuum implies, however, that the motivational circle of values might be partitioned into any number of useful segments; distinguishing 10 values rather than 5 or 20 was an arbitrary decision made for scientific convenience (Schwartz, 1992). All of the instruments listed above, however, were designed for the purpose of measuring the ten values.

Recently, Schwartz et al. (2012) proposed a more fine-tuned theoretical partitioning of the value circle into 19 motivationally distinct values. This was based both on conceptual considerations and on examination of potentially distinguishable facets of the ten values hinted at in analyses of earlier data. They assessed their refined theory with a new 57-item instrument that adopted the PVQ methodology. Confirmatory factor analyses of data from 15 samples in 10 countries supported the discrimination of the 19 values. Multidimensional scaling of the data in each sample supported the theorized order of the 19 values around the motivational circle. Moreover, the analyses demonstrated that all of the more narrowly defined values had distinct associations with external variables and that they provided new or

sharper insights into the relations of values with selected background, personality, attitude, or opinion variables.

We apply this refined theory to existing data gathered with the 40-item Portrait Values Questionnaire (PVQ40). The PVQ40 has been used to operationalize the theory of 10 basic values in 49 countries around the world. If some of the narrowly defined values in the refined theory can be identified with the earlier PVQ40, it should also be possible to gain new or sharper insights from the data gathered in the many studies completed with the PVQ40. The goal of the current research is to assess the extent to which these narrowly defined values can be discriminated in PVQ40 data and to examine whether doing so does indeed provide greater heuristic power. Using PVQ40 data from 13 countries, we ask: (a) Which, if any, of the more refined values can be distinguished with the PVQ40? and (b) Does applying the new theory provide new insights into relations of values to other variables in these data? Affirmative answers to these questions would encourage researchers to use the new value theory to reanalyze the large body of available PVQ40 data and to derive new insights from it.

The first two columns of Table 1 present the 10 values in the original theory of basic individual values and their conceptual definitions in terms of the motivational goals they express. Column 3 of the table presents the 19 values in the refined values theory and the conceptual definitions of the newly distinguished values. As noted, according to both the original and refined values theories, the values form a circular motivational continuum. Figure 1a portrays the circular continuum of the original theory and Figure 1b the circular continuum of the refined theory.

Table 1

Figure 1a and 1b

Three previous studies have examined PVQ40 data with confirmatory factor analysis (CFA) to assess empirically whether it is better to divide the motivational continuum into more than 10 values. These studies were guided primarily by statistical rather than by theoretical considerations. Saris, Knoppen, and Schwartz (in press) differentiated 15 values in data from two German student samples (N=395 and N=321). Beierlein and colleagues (2012) differentiated 14 values in data from a German population sample (N=1966). Cieciuch and Schwartz (2012) differentiated 15 values in a large Polish data set (N=10439). Each of these studies tested separate CFA models for parts of the value circle rather than a single model for the whole circle, an approach that has been called a “magnifying glass strategy” (Cieciuch & Schwartz, 2012). Knoppen and Saris (2009) and Beierlein et al. (2012) tested separate models for each pair of adjacent values, whereas Cieciuch and Schwartz (2012) tested four models, one for each set of values that form a higher order value.

The magnifying glass strategy permits a more precise examination of each part of the circle than a simultaneous CFA model of the whole circle does. This is important for assessing the claim that the values form a continuum. When testing a model of the whole circle, it may be difficult to discern the finer distinctions among values and to differentiate between values that are related. A simultaneous CFA model of the whole circle would be much more complex and might introduce sources of misspecification that are unrelated to the question that interests us most, whether each adjacent value is distinct. For example some items might have negative cross-loadings on values located on the opposing side of the circle that do not affect the distinctiveness of adjacent values (Davidov, Schmidt, & Schwartz, 2008). We therefore adopt the magnifying glass strategy in our analyses.

The current study replicates the Cieciuch and Schwartz (2012) study of the value structure in a Polish sample but goes beyond it in several ways. First, we extend the examination of the refined value theory to data in 13 countries from four continents (Europe,

Australia, North and South America). Second, we introduce a rigorous test of whether models that discriminate more narrowly defined values are preferable to those that do not. Cieciuch and Schwartz (2012) only assessed whether such models were acceptable, not whether they were preferable. Third, we present the first theory-based, multidimensional scaling analysis (MDS) of PVQ40 data across a set of countries. For this, we follow the MDS methodology that Bilsky, Janik and Schwartz (2011) introduced in order to analyze the order of the 10 basic values in PVQ21 data. The magnifying glass strategy of examining parts of the value circle separately is justifiable only if the order of the values around the circle is confirmed first (Cieciuch & Schwartz, 2012). The theory-based MDS assesses this order in each country sample.

The final step we take beyond previous studies is to examine the external validity of the more narrowly defined values that one can discriminate in PVQ40 data. We investigate whether discriminating the more narrowly defined values in re-analyses of data from previous studies might provide increased heuristic power. Specifically, we examine whether the associations of the more narrowly defined values with gender, identity styles and personality lead to more insightful and convincing explanations than those given in the previous studies.

We tested the following hypotheses in the current study:

1. The theorized motivational circle of values is present in the data from each country.
2. It is possible to discriminate the more narrowly defined values specified in Table 1 in each country.
3. CFA models that include the more narrowly defined values provide a better fit to the data than CFA models that include only the original basic values.
4. Analysis of PVQ40 data, using the more narrowly defined values, leads to a more precise and insightful picture of past published findings and a clearer explanation of previously ambiguous results.

Methods

Samples and procedure

Responses were obtained in their native language from 7352 adult respondents from 13 countries: Australia, Brazil, Chile, Finland, Germany, Greece, Israel, Italy, Slovakia, Spain, the United Kingdom, Ukraine, and the United States¹. A representative national sample was obtained in Germany and the sample was drawn from a database of community participants in Australia. In all other countries, university students gathered the data from convenience samples as part of cross-national projects that investigated the role of values in shaping political preferences and choices. Questionnaires were administered online in Australia and Finland and by telephone in Germany. In the other 10 countries, written self-reports were obtained. Table 2 describes the sample in each country.

Table 2

Instruments

We used the 40-item version of the Portrait Values Questionnaire (PVQ40: Schwartz, 2003). It includes 40 short verbal portraits of different people, gender matched to the respondent. Each portrait describes a person’s goals, aspirations, or desires that point implicitly to the importance of one of the 10 basic values in the original theory. For example, “Thinking up new ideas and being creative is important to her. She likes to do things in her own original way” describes a person for whom self-direction values are important. For each portrait, respondents answer “How much like you is this person?” on a scale from 1 (*not like me at all*) to 6 (*very much like me*). Translations were approved by the author the PVQ

¹ We gratefully acknowledge the contributions of the following persons in gathering data: Paul Bain (Australia), Claudio Torres (Brazil), Jorge Manzi (Chile), Markku Verkasalo and Jan-Erik Lönnqvist (Finland), Harald Schoen (Germany), Vassilis Pavlopoulos (Greece), Eva Vondráková and Gabriel Bianchi (Slovakia), Maria Giovanna Caprara and Carmen Tabernero (Spain), Jo Silvester (United Kingdom), Tetyana Posnova and Yuriy Fedkovich (Ukraine), Catalin Mamali (United States).

following iterations of translation, back-translation, and modification until a version that optimally captured the nuances of each item was obtained. For the PVQ40 items, see Schwartz, 2003. Based on the conceptual definitions of the values in the refined theory (Schwartz et al., 2012), we were able to specify potential indicators for 15 of the 19 narrowly defined values. We also split the achievement value based on findings in other studies (Beierlein et al. 2012; Cieciuch & Schwartz, 2012; Saris et al. in press) Column 3 of Table 1 lists these items.

Results

The theorized motivational circle of values in each country

The theory-based multidimensional scaling approach for assessing the circular continuum of values specifies a starting configuration that assigns every item to its expected region in the theorized circle (Bilsky et al., 2011). It represents the 10 values in nine sectors, dividing one sector into inner (conformity) and outer (tradition) subsectors. The nine sectors are equally spaced around the circle and each covers an angle of 40 degrees, because the theory specifies no particular spacing. The theory-based coordinates for the items are trigonometrically determined by referring to the unit circle. Bilsky et al. (2011) provide details of this approach.

Table 3 summarizes the results of the MDS in each sample. The stress-1 indexes in column 2 indicate how well the two-dimensional MDS projections that were obtained represent the underlying covariance matrix. All stress-1 indexes are less than .20, which, for a matrix of 40 items, constitutes good representation. Column 3 in Table 3 reveals that it was possible to partition the MDS projection into distinct regions (sectors) of all 10 original values in 10 of the 13 country samples. In the other three samples, two values that were expected to be adjacent in the circle were mixed in one region.

Column 4 of the table lists the sequential order of the 10 values around the circle (cf. the numbering in Figure 1a). In six samples, the order was exactly as predicted. There were no reversals of order in any of the other samples, but in four samples security was peripheral to conformity rather than adjacent to it and in four samples, as noted, two adjacent values were mixed. Considering that at least one region of mixed values is likely by chance (Schwartz & Sagiv, 1995), these results provide substantial support for the circular structure of values in each country. Column 5 of the table lists those single items that were not located in their intended region and notes the value region in which they did emerge. Of the 40 items, at least 37 emerged in their intended region in every country, and all but one misplaced item were located in a region adjacent to their own. This degree of deviation is typical of the MDS findings in past MDS research with the PVQ40 (Schwartz, 2006).

Table 3
Discriminating refined values in each country with CFA

The support for the circular arrangement of values in each country justified specifying CFA models for each of the higher order values. We performed the CFA analyses with Mplus 6.1 (Muthen & Muthen, 2010). For each higher order value, we tested three models in each country (see example for self-transcendence in Figure 2). Model 1 included the two or three values that compose the higher order value according to the original theory of 10 basic human values (e.g., universalism and benevolence). Model 2 included those more narrowly defined values that we hypothesized to be distinguishable in PVQ40 data and that compose the higher order value in the refined values theory (e.g., universalism-social concern and universalism-nature in addition to benevolence). Model 3 was the same as model 2 with an added constraint: We fixed to 1.00 the correlation between those narrowly defined values that derived from splitting a broad, original value.

Figure 2

Because Models 2 and 3 are nested, it is possible to compare their fit by examining delta χ^2 . A significant increase in χ^2 from Model 2 to Model 3 would indicate that Model 2, which discriminates the new values, fits the data better. Models 3 and 1 are equivalent because neither distinguishes between the new values; in Model 3 they correlate 1.00 and in Model 1 they are part of a single latent variable. Two questions are of major interest: (a) Does Model 2, which includes the refined values, exhibit an adequate fit? If so, we can conclude that it is possible to discriminate between the more refined values in PVQ40 data. (b) Does Model 2 fit the data significantly better than Model 3 (based on delta χ^2)? If so, we can conclude that it is preferable to discriminate between the more refined values in PVQ40 data.

Table 4 presents the full results of the analyses of the three models for the self-transcendence values. Examination of the PVQ40 items led us to try to distinguish between universalism-nature and universalism-social concern (see Table 1). In every country, the fit of Model 2, which makes this distinction, was acceptable. Moreover, the delta χ^2 comparison revealed that the fit was significantly better than the fit of Model 3. Thus, it is both possible and preferable to discriminate between two types of universalism values in PVQ40 data, a nature value that emphasizes preservation of the natural environment and a social concern value that expresses commitment to equality, justice, and protection for all people.

Table 4

Table 5 presents summary results for the self-enhancement and openness to change values. The table reports the fit of the models in which more narrowly defined values were included (Model 2) and the delta χ^2 comparison of these models with models in which the correlation between the narrowly defined values was fixed to 1.00 (Model 3).² We included hedonism in both higher order value sets because it is sometimes closer to one and sometimes to the other (Schwartz, 2006).

² Tables with the full reports are available from the first author.

For self-enhancement values, examination of the PVQ40 items suggested trying to distinguish between two aspects of the achievement value, ambition and demonstrating success (see Table 1). These aspects were not distinguished in the refined value theory, but were discriminated by Beierlein et al. (2012), Cieciuch and Schwartz (2012), and Saris et al. (in press). The fit indexes revealed that it was possible to make this distinction in all but Ukraine and preferable to make it in all but Ukraine, Finland, and Slovakia. In the latter two, the improvement over a single achievement value was not significant. In the United States, the fit was significantly better when achievement was split into two types but it was still weak. In sum, it appears worthwhile to consider distinct values of achievement-ambition and achievement-demonstrating success in the PVQ40 data from many samples.

Table 5

For openness to change values, examination of the PVQ40 items suggested trying to distinguish between two types of self-direction, thought and action. The fit indexes in Table 5 reveal that this distinction was both possible and preferable in all but Slovakia and Ukraine. Thus, it is worth pursuing when reanalyzing existing PVQ40 data from most countries.

Examination of the PVQ40 items suggested that, as in the refined value theory (see Table 1), it might be possible to distinguish two types of conformity values, two types of security values, and to split the former tradition value into humility and a more narrowly defined tradition value. However, the CFA model for such a partitioning of this higher order conservation value was not acceptable in any country. Some values had to be combined in each country. We therefore examined separate models for each of the three conservation values. Table 6 presents the results of these CFA analyses.

Table 6

For conformity, the distinction between conformity-interpersonal and conformity-rules was possible in seven countries (Australia, Brazil, Finland, Greece, Italy, United

Kingdom, and USA). Although making this distinction did not reduce the fit in any countries, it was clearly preferable only in Australia, Brazil and Finland. For tradition, the distinction between humility and the more narrowly defined tradition was possible in all 13 countries. Although making this distinction did not reduce the fit in any countries, it was clearly preferable only in eight. For security, the distinction between societal security and personal security was possible in eight countries (Australia, Chile Greece, Israel, Italy, Spain, Ukraine, and the USA), but preferable only in Israel. In sum, at least one of the distinctions among the conservation values (tradition vs. humility) is likely to be feasible in almost all countries and the two other distinctions may well be found in PVQ40 data from most countries.

Using the refined values to increase the heuristic power of PVQ40 data

The above analyses have established that eight more refined values can be discriminated in PVQ40 data. We next illustrate the benefits of adopting these refined values in PVQ40 studies, rather than using the basic values from which they were derived. We present three examples of how researchers can gain greater insight into and understanding of value associations by examining the more narrowly defined values in their PVQ40 data.

Sex differences in security values. Schwartz and Rubel (2005) found consistent cross-cultural sex differences across 70 countries in seven of the 10 basic human values. For two values (tradition and conformity), there were no consistent sex differences. For one value, security, the findings were ambiguous. Security values received higher importance ratings by women in 87 samples and by men in 40 samples. We propose that discriminating between personal security and societal security can clarify this previously ambiguous finding.

Schwartz and Rubel (2005) drew upon evolutionary psychology and social role theory perspectives to explain sex differences in values. Regarding security, they suggested that the motivation for self-protection and survival that security values express was equally adaptive for both our male and female ancestors. They also averred that this motivation is

critical in all social roles. Hence, one might expect small and inconsistent sex differences. In fact, however, there was a weak tendency for women to value security more than men.

Reconsidering the evolutionary and role theory perspectives in light of the distinction between personal and societal security suggests that women should attribute more importance than men to personal security. Personal security concerns one’s immediate environment, security for oneself and for those with whom one is close such as one’s children and relatives. Evolutionary psychology notes that mother’s parental investment in their children is greater than that of fathers (Trivers, 1972). This is reinforced by women’s traditional social roles as the main caretaker, homemaker, and source of social and emotional support for family members, roles that persist today, even if less strongly gender-linked. In contrast, it was adaptive for our male ancestors to take risks and endanger themselves to some extent in order to provide for their families through hunting and to protect them through fighting tribal enemies. This might lessen the adaptive benefit of emphasizing personal security.

Societal security concerns safety and stability in the wider society. Societal instability and disorder are viewed as a threat to personal security by both women and men (Schwartz, Sagiv, & Boehnke, 2000). Nonetheless, in early human communities and in most countries today, roles and responsibilities in the wider society have been assigned more to men than to women (armies, governance, corporations). This might counterbalance the greater concern of women about the threat to personal security that derives from societal threats. Hence there may be no sex difference for the importance of security in the wider society.

The ambiguous findings for security values in past research may have reflected different effects of sex on the two types of security. Analyzing personal and societal security separately may clarify the picture. We therefore examined differences between men and women in the importance they attributed to security values in the 13 countries of the current

study. Table 7 presents the mean importance ratings of men and women for overall security values and for the more narrowly defined personal and societal security values.³

Table 7

As in previous research, there was a weak trend for women to attribute more importance to overall security than men did, with an average effect size of .16, compared with .14 in Schwartz and Rubel (2005). Ratings were significantly higher for women in six countries. In contrast, women rated personal security more important than men did in every country and the difference was significant in 10 countries, with an average effect size of .23. Regarding societal security, men rated it more important than women did in eight countries and women rated it more important in five. Three of the four significant differences favored women and the effect size was only .01. In sum, these findings suggest that the past ambiguous findings of a weak trend in favor of women obscured two different tendencies that make theoretical sense. Women have a clear tendency to consider personal security more important than men do but there is no sex difference in the importance of societal security.

Values and identity styles. Berzonsky, Cieciuch, Duriez, and Soenens (2011) investigated relations between individuals' value priorities and their style of processing identity relevant information. They distinguished three identity processing styles used to construct, maintain, and/or reconstruct a sense of self-identity or to avoid doing so. Individuals with an "informational style" deliberately search out and evaluate self-relevant information before resolving identity conflicts or making commitments. They seek to learn about themselves and modify their identity structure in light of new information. Individuals with a "normative style" adopt and internalize the goals and standards of significant others and referent groups almost automatically. They adhere rigidly to traditional views and define themselves in terms of collective self-attributes such as religion and family. Individuals with

³ Value ratings by each individual were centered around his or her mean response to all 40 values in order to control for bias in scale use (see Schwartz, 1992).

a “diffuse-avoidant style” try to avoid facing identity conflicts and problems. They evade commitments, respond primarily to immediate external demands and consequences, and define themselves in terms of such attributes as reputation and popularity.

People’s values are likely to motivate the use of identity processing styles that are compatible with their own priorities. Various broad values, measured with the PVQ40, correlated with each identity style much as Berzonsky et al. expected. However, when we split the broad self-direction, tradition, and achievement values into the more narrowly defined values they encompass, the association of each with a relevant identity style becomes more meaningful and precise. Table 8 presents the correlation of each of these broad values with a potentially relevant identity style as reported in Berzonsky et al. (2011) and the correlations of the two more narrowly defined values derived from it. The sample consisted of 1,078 Polish adolescents and adults (51% female, mean age 21.9, SD=3.7).

Table 8

As expected, the informational style, which entails the pursuit of information in order to develop one’s own self-understanding, related positively to self-direction values, whose central goal is autonomy of thought and action. The nature and correlates of the informational style suggest, however, that it should relate primarily to the autonomy of thought component of self-direction rather than to the autonomy of action component. The correlations in the first panel of Table 8 clearly support this hypothesis. The informational style expressed a motivation for autonomy of thought but not at all for autonomy of action.

Not surprisingly, the normative style, which entails adopting and adhering to conventionally accepted external standards and views, related positively to tradition values, whose central goal is maintaining traditional customs and beliefs. However, the broad tradition value also includes the narrower humility value, a value not particularly relevant as a motivator of the normative identity style. The correlations in the second panel of Table 8

provide a more precise understanding of the value underpinnings of the normative style.

Inclusion of humility in the broad tradition value attenuated the association of this style with tradition values.

Berzonsky et al. (2011) did not expect an association between achievement values and the diffuse-avoidant style, and none was found. However, we theorized that this reflected opposing associations of the narrowly defined achievement values we identified. A diffuse-avoidant style entails evading commitments and responding primarily to immediate external demands. As we expected, it correlated negatively with achievement-ambition, which entails pursuing significant, long-term goals. On the other hand, this style, which focuses on reputation and popularity, correlated positively, as expected, with achievement-demonstrating success, whose primary goal is to impress others. In sum, these three examples illustrate how using more narrowly defined values permits added precision in understanding the value underpinnings of identity styles.

Values and personality traits. Finally, consider associations between values and the five factor personality traits. Splitting the broad self-direction, universalism, and tradition values into more narrowly defined values provides deeper insight into their relations with relevant personality traits. Roccas, Sagiv, Schwartz, and Knafo (2002) reported significant, hypothesized correlations of self-direction values with openness to experience, of universalism values with agreeableness, and of tradition values with extraversion. Column three of Table 9 presents those correlations. We examined correlations in samples from Chile and Poland with both the broad and narrowly defined values. The Chilean sample is the one described in Table 2. The Polish sample included 407 respondents (mean age = 35.2, $SD = 12.2$, 57% females). Personality traits were measured with the 60-item version of the Big Five Questionnaire (Caprara, Barbaranelli, Borgogni, Perugini, 1993), administered in respondents' native language.

Table 9

Consider first openness to experience. This trait refers to a tendency to be curious, imaginative, intellectual, and open-minded versus conventional, cautious, and close-minded (Costa & McCrae, 1992). It is highly compatible with the core motivational goal of self-direction-thought (freedom to cultivate one’s own ideas and abilities) but largely unrelated to that of self-direction-action (freedom to determine one’s own actions). The first panel of Table 9 reveals that, in both countries, the correlation between broad self-direction and openness to experience is due to self-direction-thought, not to self-direction action.

The agreeableness trait refers to the tendency to be helpful, caring, kind, trusting, and cooperative versus antagonistic, distant, irritable, and suspicious. Although Roccas et al. (2002) offered no hypothesis for the broad universalism value, they did find a significant correlation. The core goal of universalism-nature (preservation of the natural environment) has no obvious relationship to agreeableness. However, the core goal of the other narrowly defined universalism value, universalism-concern (commitment to equality, justice, and protection for all people), is quite compatible with agreeableness. It may serve as one motivation for the behavior this trait describes. The correlations in the second panel of Table 9 confirm the expectations based on using the more narrowly defined values. In both countries, agreeableness correlates substantially with universalism-concern but not at all with universalism-nature.

The extraversion trait refers to the tendency to be sociable, talkative, assertive, and active versus retiring, reserved, and shy. Roccas et al. (2002) predicted and found that extraversion correlated negatively with the broad tradition value. The core goals of the two values derived from this broad value suggest, however, that this association is primarily due to the humility value. Accepting one’s own insignificance, the core goal of humility, is likely to motivate retiring and reserved behavior and to militate against extraverted behavior that

draws attention to the self. Maintaining cultural, family or religious traditions, the goal of the narrow tradition value, does not itself oppose extraversion. The correlations in the third panel of Table 9 reveal the benefit of distinguishing humility from tradition. In both countries, the negative correlation with extraversion is substantially stronger for humility than for tradition.

Discussion

The central claim of the Schwartz (1992) theory of basic human values is that values form a circular motivational continuum. The partitioning of this continuum into discrete, measurable values, is necessary in order to investigate relations of value priorities to other variables. All of the widely used questionnaires developed to measure the basic values followed the initial partitioning of the continuum into 10 basic values that was done for scientific convenience. Recently, however, Schwartz et al. (2012) refined the original value theory. They demonstrated that it is both feasible and heuristically useful to partition the value circle into 19 more narrowly defined values. For that purpose, however, they had to develop a new questionnaire.

The current study sought to determine whether some of the narrowly defined values in the refined theory can also be discriminated in data gathered with the PVQ40. Our analyses in 13 countries demonstrated that reliable distinctions can be made in PVQ40 data between two types of security (personal and societal), two types of universalism (nature and concern), two types of self-direction (thought and action), two types of achievement (demonstrating success and ambition), and between humility and narrowly defined tradition values. Moreover, we have illustrated how making each of these distinctions in PVQ40 data permits more precise and insightful understanding of the relations between values and other variables than possible without them. We presented examples from the study of sex differences in security values, relations between value priorities and identity processing styles, and relations of value priorities to the personality traits of openness to experience, agreeableness, and extraversion.

PVQ40 data do not permit discriminating all 19 values in the refined values theory. The current study demonstrates, however, that the PVQ40 can be used to discriminate eight of the more narrowly defined values. Discrimination of these values with a different questionnaire than the one used by Schwartz et al. (2012) shows that these distinctions are independent of measurement instrument. Discriminating these eight refined values (or ten, including the achievement split) should allow for testing numerous additional hypotheses with existing PVQ40 data.

For example, Knafo, Daniel, and Khoury-Kassabri (2011) reported that Jewish adolescents' self-reported violence at school correlated positively with valuing self-direction and not with valuing tradition. Using the refined values, we might propose more precise hypotheses: a positive association of school violence with self-direction-action but not with self-direction thought and a negative association of school violence with humility but not with the narrower tradition value. Testing these hypotheses would yield substantially greater insight into relations between value priorities and school violence.

The larger the number of basic values one distinguishes, the more complex the value theory may seem to be. This is not the case, however. The key theoretical proposition—values form a circular motivational continuum—is unchanged. The finer partitioning of the continuum provides researchers with more precise empirical tools to address questions involving values. It does not make the theory more complex. With the more refined values, as with the original 10, researchers may choose to distinguish as many or as few values as they need to understand the phenomena in question. Like the original 10 values, the refined values can be combined into four higher order values or even into two dimensions (Schwartz et al., 2012). Choosing the desirable precision of value measurement might be thought of as parallel to choosing whether to measure length with meters, centimeters or millimeters. Researchers may prefer different degrees of precision depending on the questions they address.

PVQ40 data are available from many studies which tested hypotheses about direct or indirect relations of values with other variables or the mediating or moderating effects of values. These studies generated hypotheses and tested them based on ten or fewer values. The current study implies that more can be learned by reanalyzing the data of these studies, using the finer distinctions among values presented here that are theoretically relevant.⁴ The more narrowly defined components of the broad values may yield theoretically meaningful, strong, and informative findings where the broad values yielded surprising, weak, or ambiguous findings. We hope this article will encourage researchers to generate new hypotheses and to mine available PVQ40 data in search of deeper and more insightful understandings of the antecedents and consequences of values and their function as mediators and moderators.

⁴ The last column in Table 1 lists the PVQ40 items that measure each refined value.

References

Beierlein, C., Davidov, E., Schmidt, P., Schwartz, S. H., & Rammstedt, B. (2012). Testing the discriminant validity of Schwartz' Portrait Value Questionnaire items – A replication and extension of Knoppen and Saris (2009). *Survey Research Methods*, 6, 25-36.

Berzonsky, M. D., Cieciuch, J., Duriez, B., & Soenens, B. (2011). The how and what of identity formation: Associations between identity styles and value orientations. *Personality and Individual Differences*, 50, 295-299.

Bilsky, W., Janik, M., & Schwartz, S. H. (2011). The structural organization of human values: Evidence from three rounds of the European Social Survey (ESS). *Journal of Cross-Cultural Psychology*, 42, 759-776.

Caprara, G. V., Barbaranelli, C., Borgogni, L., & Perugini, M. (1993). The 'Big Five Questionnaire': A new questionnaire to assess the five factor model. *Personality and Individual Differences*, 15, 281–288.

Cieciuch, J., & Schwartz, S. H. (2012). The number of distinct basic values and their structure assessed by PVQ-40. *Journal of Personality Assessment*, 94, 321-328.

Costa, P. T., Jr., & McCrae, R. R. (1992). *Revised NEO Personality Inventory (NEO-PI-R) and NEO Five Factor Inventory (NEO-FFI) professional manual*. Odessa, FL: Psychological Assessment Resources.

Davidov, E., Schmidt, P., & Schwartz, S. H. (2008). Bringing values back in: The adequacy of the European social survey to measure values in 20 countries. *Public Opinion Quarterly*, 72, 420-445.

Döring, A.K., Blauensteiner, A., Aryus, K., Drögekamp, L. & Bilsky, W. (2010). Assessing values at an early age: the picture-based value survey for children. *Journal of Personality Assessment*, 92, 439-448.

- Knafo, A., Daniel, E., and Khoury-Kassabri, M. (2008). Values as protective factors against violent behavior in Jewish and Arab high schools in Israel. *Child Development*, 79, 652-667.
- Lee, J. A., Soutar, G., & Louviere, J. (2008). An alternative approach to measuring Schwartz's values: The best-worst scaling approach. *Journal of Personality Assessment*, 90, 335-347.
- Muthen, L. K., & Muthen, B. O. (2010). *Mplus User's guide. Sixth edition*. Los Angeles: Muthen and Muthen.
- Popper, K., R. (1976). The myth of the framework. In: E. Freeman (Ed.) *The abdication of philosophy - Philosophy and the public good: Essays in honor of Paul Arthur Schilpp* (pp. 23-48). LaSalle, IL: Open Court.
- Roccas, S., Sagiv, L., Schwartz, S., H., & Knafo, A. (2002). The big five personality factors and personal values. *Personality and Social Psychology Bulletin*, 28, 789-801.
- Rokeach, M. (1973). *The nature of human values*. New York: Free Press.
- Saris, W. E., Knoppen, D., & Schwartz, S. H. (in press). Operationalizing the theory of human values: Balancing homogeneity of reflective items and theoretical coverage. *Survey Research Methods*.
- Schwartz, S. H. (1992). Universals in the content and structure of values: Theory and empirical tests in 20 countries. In M. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 25, pp. 1-65). New York: Academic Press.
- Schwartz, S. H. (2003). Value orientations. *European social survey core questionnaire development*, Ch. 7. At http://www.europeansocialsurvey.org/index.php?option=com_docman&task=cat_view&gid=83&Itemid=80

Schwartz, S. H. (2006). Les valeurs de base de la personne: Théorie, mesures et applications [Basic human values: Theory, measurement, and applications]. *Revue Française de Sociologie*, 47, 249-288.

Schwartz, S. H., & Bilsky, W. (1987). Toward a universal psychological structure of human values. *Journal of Personality and Social Psychology*, 53, 550-562.

Schwartz, S. H., Cieciuch, J., Vecchione, M., Davidov, E., Fischer, R., Beierlein, C., Ramos, A., Verkasalo, M., Lönnqvist, J.-E., Demirutku, K., Dirilen-Gumus, O., & Konty, M. (2012). Refining the theory of basic individual values. *Journal of Personality and Social Psychology*, in press.

Schwartz, S., & Rubel, T. (2005). Sex differences in value priorities: Cross-cultural and multimethod studies. *Journal of Personality and Social Psychology*, 89, 1010-1028.

Schwartz, S.H., & Sagiv, L. (1995). Identifying culture specifics in the content and structure of values. *Journal of Cross-Cultural Psychology*, 26, 92-116.

Schwartz, S. H., Sagiv, L., & Boehnke, K. (2000). Worries and values. *Journal of Personality*, 68, 309-346.

Trivers, R. L. (1972). Parental investment and sexual selection. In B. Campbell (Ed.), *Sexual selection and the descent of man* (pp. 136–179). Chicago: Aldine.

Table 1.

The ten basic values and potential refined values in the PVQ-40

10 basic values	Definitions of 10 basic values	19 values in the refined values theory	16 potentially distinguishable values in the PVQ-40 with their indicator items
Self-Direction	Independent thought and action—choosing, creating, and exploring	Self-Direction—Thought (the freedom to cultivate one's own ideas and abilities)	Self-Direction—Action (sd11, sd34)
		Self-Direction—Action (the freedom to determine one's own actions)	Self-Direction—Thought (sd1, sd22)
Stimulation	Excitement, novelty, and challenge in life	Stimulation—Definition unchanged	Stimulation (st6, st15, st30)
Hedonism	Pleasure and sensuous gratification for oneself	Hedonism—Definition unchanged	Hedonism (he10, he26, he37)
Achievement	Personal success through demonstrating competence according to social standards	Achievement—Definition unchanged	Ambition (ac24, ac32)
			Demonstrating success (ac4, ac13)

Power	Social status and prestige, control or dominance over people and resources	Power—Dominance (power through exercising control over people)	Power (po2, po17, po39)
		Power—Resources (power through control of material and social resources)	
		Face (security and power through maintaining one’s public image and avoiding humiliation)	
Security	Safety, harmony and stability of society, relationships, and self	Security—Personal (safety in one’s immediate environment)	Personal Security (se5, se21, se31)
		Security—Societal (safety and stability in the wider society)	Societal Security (se14, se35)
Conformity	The restraint of actions, inclinations, and impulses that are likely to upset or harm others and violate social expectations or norms	Conformity—Rules (compliance with rules, laws, and formal obligations)	Conformity—Rules (co7, co28)
		Conformity—Interpersonal (avoidance of upsetting or harming other people)	Conformity—Interpersonal (co16, co36)
Tradition	Respect, commitment and acceptance of the customs and ideas that traditional culture or religion provides	Tradition (maintaining and preserving cultural, family or religious traditions)	Tradition (tr20, tr25)
		Humility (recognizing one’s insignificance in the larger scheme of things)	Humility (tr9, tr38)

Benevolence	Preservation and enhancement of the welfare of people with whom one is in frequent personal contact	Benevolence—Dependability (being a reliable and trustworthy member of the ingroup)	Benevolence (be12, be18, be27, be33)
		Benevolence—Caring (commitment to the welfare of ingroup members)	
Universalism	Understanding, appreciation, tolerance and protection for the welfare of <i>all</i> people and of nature	Universalism—Concern (commitment to equality, justice and protection for all people)	Universalism—Concern (un3, un8, un23, un29)
		Universalism—Nature (preservation of the natural environment)	Universalism—Nature (un19, un40)
		Universalism—Tolerance (acceptance and understanding of those who are different from oneself)	

Table 2.
Description of the samples in the study

Country	N	Percent Female	Mean Age (Std Dev)	Mean years of education (sd) ^a	Mean household income (sd) ^b
Australia	285	53.6%	36.1 (13.9)	16.6 (3.6)	3.7 (2.1)
Brazil	997	56.3%	34.1 (9.0)	16.6 (3.8)	1.8 (1.0)
Chile	415	50.0%	43.3 (13.4)	15.9 (4.2)	3.8 (2.1)
Finland	449	68.2%	40.1 (13.2)	16.2 (4.3)	4.0 (2.0)
Germany	1066	46.5%	53.9 (16.4)	14.6 (4.4)	4.0 (2.1)
Greece	375	48.5%	41.9 (12.1)	15.3 (3.5)	3.3 (1.7)
Israel	478	56.9%	38.6 (12.7)	15.6 (3.0)	3.8 (1.8)
Italy	564	55.8%	38.7 (13.9)	15.3 (3.7)	3.9 (1.6)
Slovakia	487	51.0%	47.7 (14.6)	14.4 (3.3)	4.7 (1.8)
Spain	420	53.8%	37.7 (14.8)	16.4* (4.2)	3.8 (1.3)
Ukraine	740	48.3%	41.1 (12.5)	14.0 (3.3)	4.3 (1.8)
United Kingdom	471	64.2%	36.6 (12.1)	15.8* (4.3)	2.7 (1.6)
United States	544	55.9%	32.6 (14.4)	14.0 (2.2)	4.4 (1.9)

Notes. ^a Includes compulsory years of schooling; ^b Income was measured with the following scale:
1 = very much above the average of your country, 2 = above the average, 3 = a little above average,
4 = about average, 5 = a little below the average, 6 = below the average, 7 = very much below the
average.
*Estimates based on highest level of educational attainment.

Table 3.

Summary of value structures obtained with a theory-based multidimensional scaling analysis in each country

Country	Stress- I	# Distinct Regions	Sequence of Values*	Misplaced Items
Australia	.197	10	1,2,3/4,5,6,7,8,9,10	St6 in SD; Po39 in AC
Brazil	.163	10	1,2,3/4/5,6,7,8,9,10	Un23 in BE; Un40 in BE; Po39 in AC
Chile	.190	10	1,2, 3/4/5, 6/7, 8, 9, 10	Un3 and Un8 in BE
Finland	.189	10	1,2,3,4,5,6,7,8,9,10	Tr25 in SEC; Po39 in AC; St6 in SD
Germany	.144	10	1,2,3/4/5,6,7,8,9,10	Se5 in CO; Po39 in AC; He26 in ST
Greece	.166	10	1,2,3/4,5,6,7,8,9,10	Se21 in CO; St15 in HE
Israel	.181	10	1,2,3/4,5,6,7,8,9,10	Po39 in AC; St6 in SD
Italy	.126	9	1+2,3/4,5,6,7,8,9,10	Co16 in SEC; He10 in ST; Po39 in AC
Slovakia	.141	10	1,2,3/4,5,6,7,8,9,10	Be27 in UN
Spain	.161	9	1,2,3/4/5,6,7,8+9,10	Tr38 in BE; Un29 in BE
Ukraine	.167	10	1/2,3/4/5,6,7,8,9,10	Po39 in AC; Co28 in UN; Be33 in UN
United Kingdom	.171	10	1,2,3/4/5,6/7,8,9,10	Un40 in BE; Tr25 in CO; Po39 in AC
United States	.199	9	1,2,3/4,5,6,7,8+9,10	Be18 in UN

*Note: 1=Universalism (UN); 2=Benevolence (BE); 3=Tradition (TR); 4=Conformity (CO);

5=Security (SE); 6=Power (PO); 7=Achievement (AC); 8=Hedonism (HE); 9=Stimulation (ST);

10=Self-direction (SD).

x/y indicates that x is in a peripheral position and y in a central position.

x+y indicates that x and y are mixed in one sector.

For the PVQ40 items, see Schwartz, 2003.

Table 4. Global fit measures for the confirmatory factor analyses of self-transcendence values

	Model 1: Latent variables UN, BE (34df)				Model 2: Latent variables: UNN, UNS, BE (32df)				Model 3: Model 2 plus UNN/UNS correlation fixed to 1 (33df)				Model 3 minus 2 (1df)	
	CFI	SRMR	RMSEA	χ^2	CFI	SRMR	RMSEA	χ^2	CFI	SRMR	RMSEA	χ^2	$\Delta\chi^2$	$p <$
Australia	.856	.075	.107 (.09-.13)	144.1	.935	.057	.074 (.05-.04)	81.5	.866	.071	.104 (.09-.12)	135.0	53.5	.001
Brazil	.893	.052	.090 (.08-.10)	310.3	.938	.040	.071 (.06-.08)	191.5	.902	.049	.087 (.08-.10)	284.6	93.1	.001
Chile	.842	.063	.107 (.09-.12)	194.4	.949	.043	.062 (.05-.08)	83.7	.846	.062	.107 (.09-.12)	189.3	105.6	.001
Finland	.805	.077	.127 (.11-.14)	297.9	.942	.052	.072 (.06-.09)	105.5	.805	.077	.129 (.12-.14)	279.0	174.4	.001
Greece	.831	.063	.106 (.09-.12)	177.7	.942	.045	.064 (.05-.08)	81.3	.843	.060	.104 (.09-.12)	166.4	85.1	.001
Germany	.904	.048	.085 (.08-.09)	296.8	.949	.039	.064 (.06-.07)	173.1	.910	.046	.084 (.08-.09)	279.8	106.7	.001
Israel	.836	.067	.108 (.10-.11)	224.9	.905	.056	.085 (.07-.10)	142.7	.841	.065	.108 (.10-.12)	218.2	75.5	.001
Italy	.905	.053	.094 (.08-.11)	203.0	.960	.039	.063 (.05-.08)	103.1	.923	.048	.086 (.07-.10)	169.3	66.2	.001
Slovakia	.921	.043	.074 (.06-.09)	125.7	.969	.031	.048 (.03-.06)	68.1	.922	.043	.075 (.06-.09)	124.1	56.0	.001
Spain	.919	.050	.085 (.07-.10)	137.5	.975	.034	.049 (.03-.07)	64.5	.931	.045	.080 (.07-.10)	121.5	57.0	.001
Ukraine	.966	.030	.045 (.03-.06)	83.9	.990	.023	.026 (.01-.04)	47.6	.977	.027	.037 (.02-.05)	65.9	18.3	.001
UK	.897	.060	.104 (.09-.12)	205.9	.948	.048	.076 (.06-.09)	118.8	.897	.059	.105 (.09-.12)	203.9	85.1	.001
USA	.874	.060	.098 (.09-.11)	209.9	.933	.045	.073 (.06-.09)	125.6	.880	.057	.096 (.08-.11)	199.7	74.1	.001

Table 5. Global fit measures for the confirmatory factor analyses of self-enhancement and openness to change values

	Self Enhancement: Latent variables HE, AC-A, AC-S, PO						Openness to Change: Latent variables HE, ST, SD-A, SD-T					
	Model 2 for (29df)				Model 3 minus Model 2 (1df)		Model 2 for (df=29)				Model 3 minus Model 2 (1df)	
	CFI	SRMR	RMSEA	χ^2	$\Delta\chi^2$	p<	CFI	SRMR	RMSEA	χ^2	$\Delta\chi^2$	p<
Australia	.910	.066	.113	134.2	26.6	.001	.944	.047	.074	74.1	91.6	.001
Brazil	.915	.076	.102	328.9	46.1	.001	.954	.040	.064	148.1	175.8	.001
Chile	.974	.035	.050	59.4	5.6	.05	.971	.030	.047	55.4	63.9	.01
Finland	.939	.072	.095	146.0	2.1	ns	.939	.044	.080	112.1	129.4	.001
Germany	.946	.043	.072	190.8	54.1	.001	.850	.063	.106	378.0	387.3	.01
Greece	.957	.044	.072	85.6	9.6	.01	.917	.049	.082	101.3	121.8	.001
Israel	.948	.064	.089	139.5	41.4	.001	.950	.043	.075	107.2	136.6	.001
Italy	.958	.048	.081	134.7	19.3	.001	.954	.037	.070	107.4	130.8	.001
Slovakia	.955	.044	.075	108.1	3.7	ns	Not possible to differentiate.					
Spain	.954	.051	.071	90.0	19.3	.001	.955	.038	.066	82.6	87.8	.05
Ukraine	Not possible to differentiate						Not possible to differentiate.					
United Kingdom	.945	.056	.089	137.0	75.2	.001	.951	.037	.075	106.6	114.4	.01
United States	.892	.079	.111	225.0	6.6	.05	.944	.041	.073	113.1	131.0	.001

Table 6. Global fit measures for the confirmatory factor analyses of conformity, tradition, and security.

	<u>Conformity-Interpersonal & Conformity-Rules</u>							<u>Tradition & Humility</u>						<u>Societal Security & Personal Security</u>					
	Model 2 (2df)				Model 3 minus			Model 2 (1df)				Model 3 minus		Model 2 (2df)				Model 3 minus	
					Model 2 (1df)							Model 2 (1df)						Model 2 (1df)	
	CFI	SRMR	RMSEA	χ ²	Δχ ²	p<	CFI	SRMR	RMSEA	χ ²	Δχ ²	p<	CFI	SRMR	RMSEA	χ ²	Δχ ²	p<	
Australia	.959	.031	.172	9.5	7.9	.01	.993	.014	.046	1.6	8.2	.01	.887	.043	.113	18.6	.7	ns	
Brazil	.961	.026	.141	21.0	3.9	.05	1.00	.003	.000	.2	2.7	ns	Not possible to differentiate						
Chile	Not possible to differentiate						.965	.021	.090	4.3	1.3	ns	.972	.026	.067	11.5	.4	ns	
Finland	.965	.028	.166	13.3	17.6	.001	1.00	.007	.000	.4	.1	ns	Not possible to differentiate						
Germany	Not possible to differentiate						.999	.007	.019	1.4	44.3	.001	Not possible to differentiate						
Greece	1.00	.008	.000	.8	2.9	ns	.998	.001	.004	1.6	12.4	.001	1.00	.009	.000	1.0	.0	ns	
Israel	Not possible to differentiate						1.00	.005	.000	.5	37.0	.001	1.00	.007	.000	.8	6.4	.05	
Italy	.932	.033	.164	15.9	.4	ns	1.00	.000	.000	.0	12.7	.001	.998	.014	.018	4.7	.0	ns	
Slovakia	Not possible to differentiate						1.00	.003	.000	.1	5.6	.05	Not possible to differentiate						
Spain	Not possible to differentiate						.964	.024	.112	6.2	13.7	.001	.960	.029	.067	11.6	.01	ns	
Ukraine	Not possible to differentiate						1.00	.004	.000	.4	2.4	ns	.980	.021	.046	10.2	.5	ns	
UK	.939	.037	.215	22.8	.4	ns	1.00	.004	.000	.2	18.2	.001	Not possible to differentiate						
USA	.975	.023	.124	9.4	.0	ns	.996	.011	.032	1.6	5.8	ns	1.00	.013	.000	3.3	5.0	ns	

Table 7. Mean importance of broad security values and of personal and societal security among men and women

	Broad Security			Personal Security			Societal Security		
	men	women	<i>F</i>	men	women	<i>F</i>	men	women	<i>F</i>
Australia	.05	.05	1.06	.06	.18	4.30*	.04	-.15	.35
Brazil	.04	.07	4.52*	.08	.17	8.81**	-.01	-.06	.23
Chile	.24	.39	6.10*	.34	.54	8.34**	.28	.18	1.15
Finland	.24	.24	.02	.07	.13	.42	.50	.43	.26
Germany	.37	.48	8.69**	.24	.34	4.62*	.56	.69	7.06**
Greece	.00	.27	17.49***	.08	.40	21.73***	-.13	.09	6.41*
Israel	.18	.21	.47	-.22	.06	4.02*	.78	.45	15.13***
Italy	.09	.25	9.23**	.08	.25	9.29**	.12	.24	4.3*
Slovakia	.23	.41	11.61**	.40	.68	21.78***	-.02	.01	.72
Spain	.05	.05	.27	.15	.20	1.12	-.10	-.17	.05
Ukraine	.18	.20	3.29	.28	.38	8.20**	.04	-.07	.01
United Kingdom	.05	.11	.22	.16	.20	.31	-.10	-.03	.05
USA	.04	.11	2.63	.02	.26	13.00***	.07	-.12	2.21
<i>M</i> (Unweighted)	.14	.22		.13	.29		.16	.11	
Mean Effect Sizes	.16			.23			.01		

*** $p < .001$, ** $p < .01$, * $p < .05$

Table 8.

Correlations of identity styles with three broad values and with their refined value components ($N = 1078$)

Identity Style	Broad Value	Narrowly Defined Values	
Informational	Self-Direction	Self-Direction-Thought	Self-Direction-Action
	.11***	.21***	-.02
Normative	Tradition	Humility	Tradition
	.25***	.06	.34***
Diffuse-Avoidant	Achievement	Achievement-Demonstrating Success	Achievement-Ambition
	-.00	-.08**	.07*

Note. The correlations with the three broad values are from Berzonsky et al. (2011) and the correlations with the narrowly defined values are based on data from that source.

*** $p < .001$, ** $p < .01$, * $p < .05$

Table 9.

Correlations of three five-factor model personality traits with three broad values and with their refined components in Chile and Poland

	Chile (N=415)	Poland (N=407)	Reported in Roccas et al., 2002
Openness to Experience with			
Self-direction	.24***	.29***	.48***
Self-direction-Thought	.33***	.36***	
Self-direction-Action	.03	.08	
Agreeableness with:			
Universalism	.29***	.30***	.15**
Universalism-Concern	.38***	.38***	
Universalism-Nature	.02	.04	
Extraversion with Tradition			
Tradition	-.19***	-.33***	-.29***
Tradition (narrow)	-.08	-.14**	
Humility	-.23***	-.39***	

*** $p < .001$, ** $p < .01$, * $p < .05$

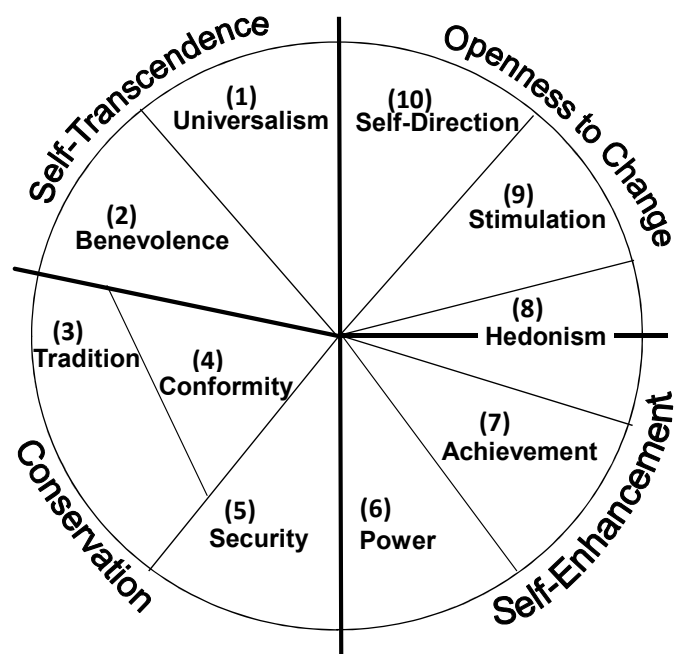


Figure 1a. Circular motivational continuum of 10 values in the original value theory (Schwartz, 1992)

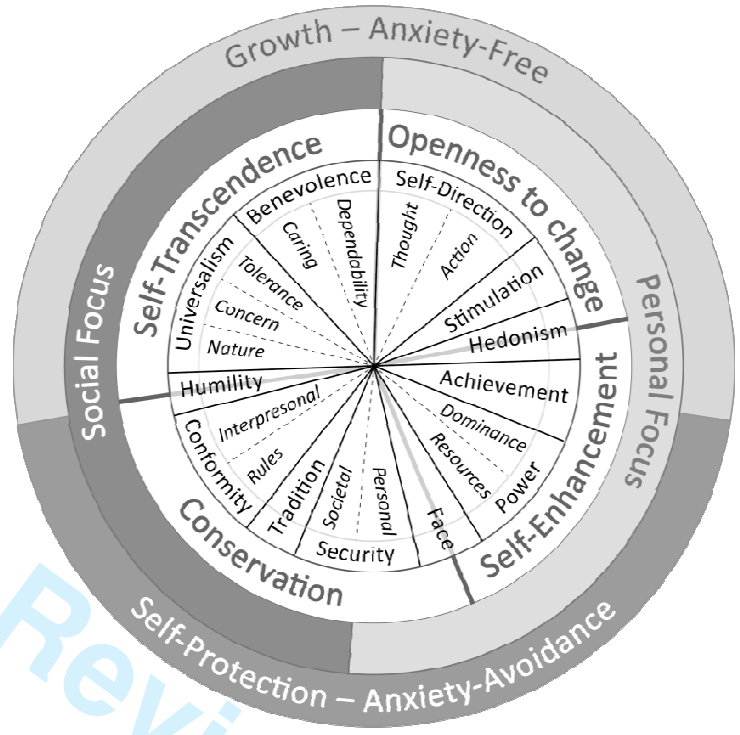


Figure 1b. Figure 1. Circular motivational continuum of 19 values in the refined value theory (Schwartz et al., 2012).

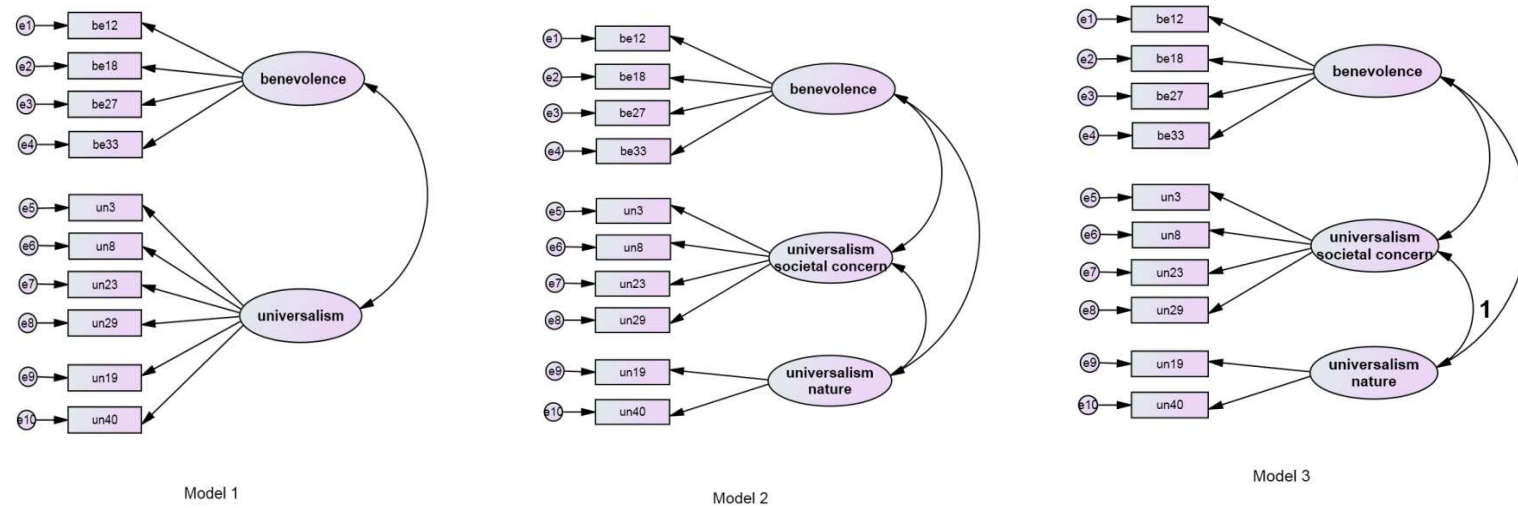


Figure 2. Confirmatory factor analysis models for self-transcendence.

Running Head: Applying the refined values theory to PVQ data

Applying the refined values theory to past data: What can researchers gain?

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Abstract

The refined theory of basic human values (Schwartz et al., 2012) divides the circular continuum of values into 19 motivationally distinct values. Research with a new questionnaire discriminated these values in 10 countries and demonstrated the benefits of the finer distinctions. We ask: Can researchers gain by applying the refined theory to the large repository of available data gathered with the 40-item Portrait Values Questionnaire (PVQ40)? How many, if any, of the more refined values can be distinguished in PVQ40 data and does this provide improved understanding of the topics studied? We addressed these questions with data from 13 countries on four continents (total N = 7352). Theory-based multidimensional scaling and confirmatory factor analyses in each country revealed several more narrowly defined values in the PVQ data. Examples from 14 countries demonstrated that these refinements can increase predictive and explanatory power.

Key words: Refined values, Portrait Values Questionnaire, value prediction, value circle, motivation

Karl Popper (1973) argued strongly that theory precedes observation. Every observation is understood in terms of a prior, often implicit, theory. Although Popper thought that theories cannot be confirmed definitively, he held that better theories replace poorer ones because they explain existing observations more effectively. The current study utilizes a new, refined values theory to explain observations that were gathered with a values instrument based on a prior, prevailing theory. We demonstrate that, by applying the refined theory, researchers can attain a richer and more nuanced interpretation and understanding of the large body of existing data gathered with the Portrait Values Questionnaire.

Two decades ago, Schwartz (1992) proposed what has become the most fully elaborated, empirically grounded, and widely used theory of basic values. The initial version of this theory (Schwartz & Bilsky, 1987) was developed in order to interpret existing data gathered with an old instrument – the Rokeach Value Scale (RVS). Schwartz and Bilsky (1987) theorized that values form a circular motivational structure. They corroborated this structure by analyzing RVS data from 1968, obtained from a representative sample of Americans (Rokeach, 1973). Having found support in the Rokeach data for the assumption that values form a motivational circle, Schwartz (1992) elaborated his theory. The new theory organized the value domain into 10 motivationally distinct, basic human values. It provided an understanding of relationships among values that had been present in the old data but had gone unnoticed. The current study builds on this example.

Schwartz and others developed a variety of instruments to operationalize this theory in adult, adolescent, and children’s samples. These include the Schwartz Value Survey (Schwartz, 1992), the Portrait Values Questionnaire in 40- and 21-item versions (PVQ: Schwartz, 2003), the Picture Based Value Survey for Children (Döring, Blauensteiner, Aryus, Drögekamp, & Bilsky, 2010), and the Schwartz Values Best-Worst Scale (Lee, Soutar, &

Louviere, 2008). Research with these instruments has supported the theory in a wide variety of samples from over 75 countries, demonstrating that the theory holds near universally and is not instrument dependent. Although all 10 values were not discriminated in every study with all instruments (e.g., Davidov, Schmidt, & Schwartz, 2008), evidence for the circular structure of value relations was extremely strong. Studies by hundreds of researchers have produced a vast database of human values, available for secondary analysis.

Schwartz, Cieciuch, Vecchione, Davidov et al. (2012) noted that the central postulate of the values theory, that values form a circular motivational continuum, has been neglected in almost all values studies. Instead, researchers have largely treated the theory as a typology of 10 discrete values or of four higher order values into which the 10 values can be collapsed. They have examined associations of these discrete values with other variables. The idea of a continuum implies, however, that the motivational circle of values might be partitioned into any number of useful segments; distinguishing 10 values rather than 5 or 20 was an arbitrary decision made for scientific convenience (Schwartz, 1992). All of the instruments listed above, however, were designed for the purpose of measuring the ten values.

The circular continuum structure is critically important to the theory for three reasons. First, it identifies a systematic pattern in the relations of all values to any other variable. Values nearby in the circle are expected to relate similarly to any other variable, those on opposite sides of the circle to exhibit opposite associations. Second, it captures the dynamic bases of the relations of values to one another. Adjacent values in the circle express compatible motivations, opposing values express conflicting motivations. Values on one side of the circle (Figure 1b, left) regulate how one relates socially to others; values on the other side (right) regulate how one expresses personal interests and characteristics. Values on the bottom of the circle are grounded in anxiety and express self-protective motivations; values on the top of the circle are relatively free from anxiety and express growth motivations.

Third, as shown in Figure 1b, the partitioning of the circle captures the hierarchical organization of values from broad categories to the more specific values they encompass.

Recently, Schwartz et al. (2012) proposed a more fine-tuned theoretical partitioning of the value circle into 19 motivationally distinct values. This was based both on conceptual considerations and on examination of potentially distinguishable facets of the ten values hinted at in analyses of earlier data. They assessed their refined theory with a new 57-item instrument that adopted the PVQ methodology. Confirmatory factor analyses of data from 15 samples in 10 countries supported the discrimination of the 19 values. Multidimensional scaling of the data in each sample supported the theorized order of the 19 values around the motivational circle. Moreover, the analyses demonstrated that all of the more narrowly defined values had distinct associations with external variables and that they provided new or sharper insights into the relations of values with selected background, personality, attitude, or opinion variables.

We apply this refined theory to existing data gathered with the 40-item Portrait Values Questionnaire (PVQ40). The PVQ40 has been used to operationalize the theory of 10 basic values in 49 countries around the world. If some of the narrowly defined values in the refined theory can be identified with the earlier PVQ40, it should also be possible to gain new or sharper insights from the data gathered in the many studies completed with the PVQ40. The goal of the current research is to assess the extent to which these narrowly defined values can be discriminated in PVQ40 data and to examine whether doing so does indeed provide greater heuristic power. Using PVQ40 data from 13 countries, we ask: (a) Which, if any, of the more refined values can be distinguished with the PVQ40? and (b) Does applying the new theory provide new insights into relations of values to other variables in these data? Affirmative answers to these questions would encourage researchers to use the new value

theory to reanalyze the large body of available PVQ40 data and to derive new insights from it.

The first two columns of Table 1 present the 10 values in the original theory of basic individual values and their conceptual definitions in terms of the motivational goals they express. Column 3 of the table presents the 19 values in the refined values theory and the conceptual definitions of the newly distinguished values. As noted, according to both the original and refined values theories, the values form a circular motivational continuum. Figure 1a portrays the circular continuum of the original theory and Figure 1b the circular continuum of the refined theory.

Table 1

Figure 1a and 1b

Three previous studies have examined PVQ40 data with confirmatory factor analysis (CFA) to assess empirically whether it is better to divide the motivational continuum into more than 10 values. These studies were guided primarily by statistical rather than by theoretical considerations. Saris, Knoppen, and Schwartz (in press) differentiated 15 values in data from two German student samples (N=395 and N=321). Beierlein and colleagues (2012) differentiated 14 values in data from a German population sample (N=1966). Cieciuch and Schwartz (2012) differentiated 15 values in a large Polish data set (N=10439). Each of these studies tested separate CFA models for parts of the value circle rather than a single model for the whole circle, an approach that has been called a “magnifying glass strategy” (Cieciuch & Schwartz, 2012). Knoppen and Saris (2009) and Beierlein et al. (2012) tested separate models for each pair of adjacent values, whereas Cieciuch and Schwartz (2012) tested four models, one for each set of values that form a higher order value.

The magnifying glass strategy permits a more precise examination of each part of the circle than a simultaneous CFA model of the whole circle does. This is important for

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2
3 assessing the claim that the values form a continuum. When testing a model of the whole
4 circle, it may be difficult to discern the finer distinctions among values and to differentiate
5 between values that are related. A simultaneous CFA model of the whole circle would be
6 much more complex and might introduce sources of misspecification that are unrelated to the
7 question that interests us most, whether each adjacent value is distinct. For example some
8 items might have negative cross-loadings on values located on the opposing side of the circle
9 that do not affect the distinctiveness of adjacent values (Davidov, Schmidt, & Schwartz,
10 2008). We therefore adopt the magnifying glass strategy in our analyses.

20
21 The current study replicates the Cieciuch and Schwartz (2012) study of the value
22 structure in a Polish sample but goes beyond it in several ways. First, we extend the
23 examination of the refined value theory to data in 13 countries from four continents (Europe,
24 Australia, North and South America). Second, we introduce a rigorous test of whether models
25 that discriminate more narrowly defined values are preferable to those that do not. Cieciuch
26 and Schwartz (2012) only assessed whether such models were acceptable, not whether they
27 were preferable. Third, we present the first theory-based, multidimensional scaling analysis
28 (MDS) of PVQ40 data across a set of countries. For this, we follow the MDS methodology
29 that Bilsky, Janik and Schwartz (2011) introduced in order to analyze the order of the 10
30 basic values in PVQ21 data. The magnifying glass strategy of examining parts of the value
31 circle separately is justifiable only if the order of the values around the circle is confirmed
32 first (Cieciuch & Schwartz, 2012). The theory-based MDS assesses this order in each country
33 sample.

48
49 The final step we take beyond previous studies is to examine the external validity of
50 the more narrowly defined values that one can discriminate in PVQ40 data. We investigate
51 whether discriminating the more narrowly defined values in re-analyses of data from previous
52 studies might provide increased heuristic power. Specifically, we examine whether the

associations of the more narrowly defined values with gender, identity styles and personality lead to more insightful and convincing explanations than those given in the previous studies.

We tested the following hypotheses in the current study:

1. The theorized motivational circle of values is present in the data from each country.
2. It is possible to discriminate the more narrowly defined values specified in Table 1 in each country.
3. CFA models that include the more narrowly defined values provide a better fit to the data than CFA models that include only the original basic values.
4. Analysis of PVQ40 data, using the more narrowly defined values, leads to a more precise and insightful picture of past published findings and a clearer explanation of previously ambiguous results.

Methods

Samples and procedure

Responses were obtained in their native language from 7352 adult respondents from 13 countries: Australia, Brazil, Chile, Finland, Germany, Greece, Israel, Italy, Slovakia, Spain, the United Kingdom, Ukraine, and the United States¹. A representative national sample was obtained in Germany and the sample was drawn from a database of community participants in Australia. In all other countries, university students gathered the data from convenience samples as part of cross-national projects that investigated the role of values in shaping political preferences and choices. Questionnaires were administered online in

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Australia and Finland and by telephone in Germany. In the other 10 countries, written self-reports were obtained. Table 2 describes the sample in each country.

Table 2

Instruments

We used the 40-item version of the Portrait Values Questionnaire (PVQ40; Schwartz, 2003). It includes 40 short verbal portraits of different people, gender matched to the respondent. Each portrait describes a person’s goals, aspirations, or desires that point implicitly to the importance of one of the 10 basic values in the original theory. For example, “Thinking up new ideas and being creative is important to her. She likes to do things in her own original way” describes a person for whom self-direction values are important. For each portrait, respondents answer “How much like you is this person?” on a scale from 1 (*not like me at all*) to 6 (*very much like me*). Translations were approved by the author the PVQ following iterations of translation, back-translation, and modification until a version that optimally captured the nuances of each item was obtained. For the PVQ40 items, see Schwartz, 2003. Based on the conceptual definitions of the values in the refined theory (Schwartz et al., 2012), we were able to specify potential indicators for 15 of the 19 narrowly defined values. We also split the achievement value based on findings in other studies (Beierlein et al. 2012; Cieciuch & Schwartz, 2012; Saris et al. in press) Column 3 of Table 1 lists these items.

Results

The theorized motivational circle of values in each country

The theory-based multidimensional scaling approach for assessing the circular continuum of values specifies a starting configuration that assigns every item to its expected region in the theorized circle (Bilsky et al., 2011). It represents the 10 values in nine sectors, dividing one sector into inner (conformity) and outer (tradition) subsectors. The nine sectors

are equally spaced around the circle and each covers an angle of 40 degrees, because the theory specifies no particular spacing. The theory-based coordinates for the items are trigonometrically determined by referring to the unit circle. Bilsky et al. (2011) provide details of this approach.

Table 3 summarizes the results of the MDS in each sample. The stress-1 indexes in column 2 indicate how well the two-dimensional MDS projections that were obtained represent the underlying covariance matrix. All stress-1 indexes are less than .20, which, for a matrix of 40 items, constitutes good representation. Column 3 in Table 3 reveals that it was possible to partition the MDS projection into distinct regions (sectors) of all 10 original values in 10 of the 13 country samples. In the other three samples, two values that were expected to be adjacent in the circle were mixed in one region.

Column 4 of the table lists the sequential order of the 10 values around the circle (cf. the numbering in Figure 1a). In six samples, the order was exactly as predicted. There were no reversals of order in any of the other samples, but in four samples security was peripheral to conformity rather than adjacent to it and in four samples, as noted, two adjacent values were mixed. Considering that at least one region of mixed values is likely by chance (Schwartz & Sagiv, 1995), these results provide substantial support for the circular structure of values in each country. Column 5 of the table lists those single items that were not located in their intended region and notes the value region in which they did emerge. Of the 40 items, at least 37 emerged in their intended region in every country, and all but one misplaced item were located in a region adjacent to their own. This degree of deviation is typical of the MDS findings in past MDS research with the PVQ40 (Schwartz, 2006).

Table 3

Discriminating refined values in each country with CFA

The support for the circular arrangement of values in each country justified specifying CFA models for each of the higher order values. We performed the CFA analyses with Mplus 6.1 (Muthen & Muthen, 2010). For each higher order value, we tested three models in each country (see example for self-transcendence in Figure 2). Model 1 included the two or three values that compose the higher order value according to the original theory of 10 basic human values (e.g., universalism and benevolence). Model 2 included those more narrowly defined values that we hypothesized to be distinguishable in PVQ40 data and that compose the higher order value in the refined values theory (e.g., universalism-social concern and universalism-nature in addition to benevolence). Model 3 was the same as model 2 with an added constraint: We fixed to 1.00 the correlation between those narrowly defined values that derived from splitting a broad, original value.

Figure 2

Because Models 2 and 3 are nested, it is possible to compare their fit by examining delta χ^2 . A significant increase in χ^2 from Model 2 to Model 3 would indicate that Model 2, which discriminates the new values, fits the data better. Models 3 and 1 are equivalent because neither distinguishes between the new values; in Model 3 they correlate 1.00 and in Model 1 they are part of a single latent variable. Two questions are of major interest: (a) Does Model 2, which includes the refined values, exhibit an adequate fit? If so, we can conclude that it is possible to discriminate between the more refined values in PVQ40 data. (b) Does Model 2 fit the data significantly better than Model 3 (based on delta χ^2)? If so, we can conclude that it is preferable to discriminate between the more refined values in PVQ40 data.

Table 4 presents the full results of the analyses of the three models for the self-transcendence values. Examination of the PVQ40 items led us to try to distinguish between universalism-nature and universalism-social concern (see Table 1). In every country, the fit of Model 2, which makes this distinction, was acceptable. Moreover, the delta χ^2 comparison

revealed that the fit was significantly better than the fit of Model 3. Thus, it is both possible and preferable to discriminate between two types of universalism values in PVQ40 data, a nature value that emphasizes preservation of the natural environment and a social concern value that expresses commitment to equality, justice, and protection for all people.

Table 4

Table 5 presents summary results for the self-enhancement and openness to change values. The table reports the fit of the models in which more narrowly defined values were included (Model 2) and the delta χ^2 comparison of these models with models in which the correlation between the narrowly defined values was fixed to 1.00 (Model 3).² We included hedonism in both higher order value sets because it is sometimes closer to one and sometimes to the other (Schwartz, 2006).

For self-enhancement values, examination of the PVQ40 items suggested trying to distinguish between two aspects of the achievement value, ambition and demonstrating success (see Table 1). These aspects were not distinguished in the refined value theory, but were discriminated by Beierlein et al. (2012), Cieciuch and Schwartz (2012), and Saris et al. (in press). The fit indexes revealed that it was possible to make this distinction in all but Ukraine and preferable to make it in all but Ukraine, Finland, and Slovakia. In the latter two, the improvement over a single achievement value was not significant. In the United States, the fit was significantly better when achievement was split into two types but it was still weak. In sum, it appears worthwhile to consider distinct values of achievement-ambition and achievement-demonstrating success in the PVQ40 data from many samples.

Table 5

For openness to change values, examination of the PVQ40 items suggested trying to distinguish between two types of self-direction, thought and action. The fit indexes in Table 5

² Tables with the full reports are available from the first author.

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3 reveal that this distinction was both possible and preferable in all but Slovakia and Ukraine.
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5 Thus, it is worth pursuing when reanalyzing existing PVQ40 data from most countries.
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8 Examination of the PVQ40 items suggested that, as in the refined value theory (see
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10 Table 1), it might be possible to distinguish two types of conformity values, two types of
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12 security values, and to split the former tradition value into humility and a more narrowly
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14 defined tradition value. However, the CFA model for such a partitioning of this higher order
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16 conservation value was not acceptable in any country. Some values had to be combined in
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18 each country. We therefore examined separate models for each of the three conservation
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20 values. Table 6 presents the results of these CFA analyses.
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23 Table 6
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26 For conformity, the distinction between conformity-interpersonal and conformity-
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28 rules was possible in seven countries (Australia, Brazil, Finland, Greece, Italy, United
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30 Kingdom, and USA). Although making this distinction did not reduce the fit in any countries,
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32 it was clearly preferable only in Australia, Brazil and Finland. For tradition, the distinction
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34 between humility and the more narrowly defined tradition was possible in all 13 countries.
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36 Although making this distinction did not reduce the fit in any countries, it was clearly
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38 preferable only in eight.
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41 For security, the distinction between societal security and personal security was
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43 possible in all countries and preferable all but three countries, Greece, Chile, and Spain. In
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45 sum, two of the distinctions among the conservation values (tradition vs. humility and social
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47 vs. personal security) are likely to be feasible in almost all countries and the distinction
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49 between conformity rules and conformity interpersonal may well be found in PVQ40 data in
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51 most countries.
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54 *Using the refined values to increase the heuristic power of PVQ40 data*
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The above analyses have established that eight more refined values can be discriminated in PVQ40 data. We next illustrate the benefits of adopting these refined values in PVQ40 studies, rather than using the basic values from which they were derived. We present three examples of how researchers can gain greater insight into and understanding of value associations by examining the more narrowly defined values in their PVQ40 data.

Sex differences in security values. Schwartz and Rubel (2005) found consistent cross-cultural sex differences across 70 countries in seven of the 10 basic human values. For two values (tradition and conformity), there were no consistent sex differences. For one value, security, the findings were ambiguous. Security values received higher importance ratings by women in 87 samples and by men in 40 samples. We propose that discriminating between personal security and societal security can clarify this previously ambiguous finding.

Schwartz and Rubel (2005) drew upon evolutionary psychology and social role theory perspectives to explain sex differences in values. Regarding security, they suggested that the motivation for self-protection and survival that security values express was equally adaptive for both our male and female ancestors. They also averred that this motivation is critical in all social roles. Hence, one might expect small and inconsistent sex differences. In fact, however, there was a weak tendency for women to value security more than men.

Reconsidering the evolutionary and role theory perspectives in light of the distinction between personal and societal security suggests that women should attribute more importance than men to personal security. Personal security concerns one's immediate environment, security for oneself and for those with whom one is close such as one's children and relatives. Evolutionary psychology notes that mother's parental investment in their children is greater than that of fathers (Trivers, 1972). This is reinforced by women's traditional social roles as the main caretaker, homemaker, and source of social and emotional support for family members, roles that persist today, even if less strongly gender-linked. In contrast, it was

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3 adaptive for our male ancestors to take risks and endanger themselves to some extent in order
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5 to provide for their families through hunting and to protect them through fighting tribal
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7 enemies. This might lessen the adaptive benefit of emphasizing personal security.
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10 Societal security concerns safety and stability in the wider society. Societal instability
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12 and disorder are viewed as a threat to personal security by both women and men (Schwartz,
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14 Sagiv, & Boehnke, 2000). Nonetheless, in early human communities and in most countries
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16 today, roles and responsibilities in the wider society have been assigned more to men than to
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18 women (armies, governance, corporations). This might counterbalance the greater concern of
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20 women about the threat to personal security that derives from societal threats. Hence there
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22 may be no sex difference for the importance of security in the wider society.
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26 The ambiguous findings for security values in past research may have reflected
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28 different effects of sex on the two types of security. Analyzing personal and societal security
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30 separately may clarify the picture. We therefore examined differences between men and
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32 women in the importance they attributed to security values in the 13 countries of the current
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34 study. Table 7 presents the mean importance ratings of men and women for overall security
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36 values and for the more narrowly defined personal and societal security values.³
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39 Table 7 also lists a measure of reliability for each refined value, the index of quality
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41 (IoQ) (Saris & Gallhofer, 2007). We chose this measure of reliability because we had tested
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43 the refined values using confirmatory factor analysis. IoQ corresponds to the correlation
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45 between the observed variable and the latent variable in the confirmatory analysis. The
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47 squared IoQ can be interpreted as the percentage of variation in the observed composite score
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49 that can be attributed to the true variable of interest.
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57 ³ Value ratings by each individual were centered around his or her mean response to all 40 values in
58 order to control for bias in scale use (see Schwartz, 1992).
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As in previous research, there was a weak trend for women to attribute more importance to overall security than men did, with an average effect size of .16, compared with .14 in Schwartz and Rubel (2005). Ratings of overall security were higher for women in 10 countries, significantly in five. In contrast, women rated personal security more important than men did in all 13 countries, significantly in seven, with an average effect size of .23. Regarding societal security, men rated it more important than women did in eight countries and women rated it more important in five. Two of the three significant differences favored men. In sum, these findings suggest that the past ambiguous findings of a weak trend in favor of women obscured two different tendencies that make theoretical sense. Women clearly tend to consider personal security more important than men do. There is also a weaker tendency for men to consider societal security more important than women do, significant in two countries (Israel and the USA).⁴

Values and identity styles. Berzonsky, Cieciuch, Duriez, and Soenens (2011) investigated relations between individuals' value priorities and their style of processing identity relevant information. They distinguished three identity processing styles used to construct, maintain, and/or reconstruct a sense of self-identity or to avoid doing so. Individuals with an "informational style" deliberately search out and evaluate self-relevant information before resolving identity conflicts or making commitments. They seek to learn about themselves and modify their identity structure in light of new information. Individuals with a "normative style" adopt and internalize the goals and standards of significant others and referent groups almost automatically. They adhere rigidly to traditional views and define themselves in terms of collective self-attributes such as religion and family. Individuals with a "diffuse-avoidant style" try to avoid facing identity conflicts and problems. They evade

⁴ We may speculate that the significant difference in Israel and the USA reflects the, substantial, ongoing involvement of men in these countries in military combat that is justified as protecting society.

commitments, respond primarily to immediate external demands and consequences, and define themselves in terms of such attributes as reputation and popularity.

People’s values are likely to motivate the use of identity processing styles that are compatible with their own priorities. Various broad values, measured with the PVQ40, correlated with each identity style much as Berzonsky et al. expected. However, when we split the broad self-direction, tradition, and achievement values into the more narrowly defined values they encompass, the association of each with a relevant identity style becomes more meaningful and precise. Table 8 presents the correlation of each of these broad values with a potentially relevant identity style as reported in Berzonsky et al. (2011) and the correlations of the two more narrowly defined values derived from it. The sample consisted of 1,078 Polish adolescents and adults (51% female, mean age 21.9, SD=3.7). The IoQ measures of reliability of these values were: self-direction-thought = .71, self-direction-action = .80, humility = .71, tradition (narrowly defined) = .77, achievement-demonstrating success = .82, achievement-ambition = .79.

Table 8

As expected, the informational style, which entails the pursuit of information in order to develop one’s own self-understanding, related positively to self-direction values, whose central goal is autonomy of thought and action. The nature and correlates of the informational style suggest, however, that it should relate primarily to the autonomy of thought component of self-direction rather than to the autonomy of action component. The correlations in the first panel of Table 8 clearly support this hypothesis. The informational style expressed a motivation for autonomy of thought but not at all for autonomy of action.

Not surprisingly, the normative style, which entails adopting and adhering to conventionally accepted external standards and views, related positively to tradition values, whose central goal is maintaining traditional customs and beliefs. However, the broad

tradition value also includes the narrower humility value, a value not particularly relevant as a motivator of the normative identity style. The correlations in the second panel of Table 8 provide a more precise understanding of the value underpinnings of the normative style. Inclusion of humility in the broad tradition value attenuated the association of this style with tradition values.

Berzonsky et al. (2011) did not expect an association between achievement values and the diffuse-avoidant style, and none was found. However, we theorized that this reflected opposing associations of the narrowly defined achievement values we identified. A diffuse-avoidant style entails evading commitments and responding primarily to immediate external demands. As we expected, it correlated negatively with achievement-ambition, which entails pursuing significant, long-term goals. On the other hand, this style, which focuses on reputation and popularity, correlated positively, as expected, with achievement-demonstrating success, whose primary goal is to impress others. In sum, these three examples illustrate how using more narrowly defined values permits added precision in understanding the value underpinnings of identity styles.

Values and personality traits. Finally, consider associations between values and the five factor personality traits. Splitting the broad self-direction, universalism, and tradition values into more narrowly defined values provides deeper insight into their relations with relevant personality traits. Roccas, Sagiv, Schwartz, and Knafo (2002) reported significant, hypothesized correlations of self-direction values with openness to experience, of universalism values with agreeableness, and of tradition values with extraversion. Column three of Table 9 presents those correlations.

We examined correlations in samples from Chile and Poland with both the broad and narrowly defined values. The Chilean sample is the one described in Table 2. The Polish sample included 407 respondents (mean age = 35.2, $SD = 12.2$, 57% females). Personality

traits were measured with the 60-item version of the Big Five Questionnaire (Caprara, Barbaranelli, Borgogni, Perugini, 1993), administered in respondents' native language. The IoQ measures of reliability for the refined values were: self-direction-thought = .66 in Chile and .74 in Poland, self-direction-action = .68 in Chile and .85 in Poland, universalism-concern = .84 in Chile and .85 in Poland, universalism-nature = .87 in Chile and .90 in Poland, humility = .63 in Chile and .71 in Poland, tradition (narrowly defined) = .61 in Chile and .77 in Poland.

Table 9

Consider first openness to experience. This trait refers to a tendency to be curious, imaginative, intellectual, and open-minded versus conventional, cautious, and close-minded (Costa & McCrae, 1992). It is highly compatible with the core motivational goal of self-direction-thought (freedom to cultivate one's own ideas and abilities) but largely unrelated to that of self-direction-action (freedom to determine one's own actions). The first panel of Table 9 reveals that, in both countries, the correlation between broad self-direction and openness to experience is due to self-direction-thought, not to self-direction action.

The agreeableness trait refers to the tendency to be helpful, caring, kind, trusting, and cooperative versus antagonistic, distant, irritable, and suspicious. Although Roccas et al. (2002) offered no hypothesis for the broad universalism value, they did find a significant correlation. The core goal of universalism-nature (preservation of the natural environment) has no obvious relationship to agreeableness. However, the core goal of the other narrowly defined universalism value, universalism-concern (commitment to equality, justice, and protection for all people), is quite compatible with agreeableness. It may serve as one motivation for the behavior this trait describes. The correlations in the second panel of Table 9 confirm the expectations based on using the more narrowly defined values. In both

countries, agreeableness correlates substantially with universalism-concern but not at all with universalism-nature.

The extraversion trait refers to the tendency to be sociable, talkative, assertive, and active versus retiring, reserved, and shy. Roccas et al. (2002) predicted and found that extraversion correlated negatively with the broad tradition value. The core goals of the two values derived from this broad value suggest, however, that this association is primarily due to the humility value. Accepting one's own insignificance, the core goal of humility, is likely to motivate retiring and reserved behavior and to militate against extraverted behavior that draws attention to the self. Maintaining cultural, family or religious traditions, the goal of the narrow tradition value, does not itself oppose extraversion. The correlations in the third panel of Table 9 reveal the benefit of distinguishing humility from tradition. In both countries, the negative correlation with extraversion is substantially stronger for humility than for tradition.

Discussion

The central claim of the Schwartz (1992) theory of basic human values is that values form a circular motivational continuum. The partitioning of this continuum into discrete, measurable values, is necessary in order to investigate relations of value priorities to other variables. All of the widely used questionnaires developed to measure the basic values followed the initial partitioning of the continuum into 10 basic values that was done for scientific convenience. Recently, however, Schwartz et al. (2012) refined the original value theory. They demonstrated that it is both feasible and heuristically useful to partition the value circle into 19 more narrowly defined values. For that purpose, however, they had to develop a new questionnaire.

The current study sought to determine whether some of the narrowly defined values in the refined theory can also be discriminated in data gathered with the PVQ40. Our analyses in 13 countries demonstrated that in many countries reliable distinctions can be made in PVQ40

data between two types of security (personal and societal), two types of universalism (nature and concern), two types of self-direction (thought and action), two types of achievement (demonstrating success and ambition), and between humility and narrowly defined tradition values. Moreover, we have illustrated how making each of these distinctions in PVQ40 data permits more precise and insightful understanding of the relations between values and other variables than possible without them. We presented examples from the study of sex differences in security values, relations between value priorities and identity processing styles, and relations of value priorities to the personality traits of openness to experience, agreeableness, and extraversion.

PVQ40 data do not permit discriminating all 19 values in the refined values theory. The current study demonstrates, however, that the PVQ40 can be used to discriminate eight of the more narrowly defined values. Discrimination of these values with a different questionnaire than the one used by Schwartz et al. (2012) shows that these distinctions are independent of measurement instrument. Discriminating these eight refined values (or ten, including the achievement split) should allow for testing numerous additional hypotheses with existing PVQ40 data.

For example, Knafo, Daniel, and Khoury-Kassabri (2011) reported that Jewish adolescents' self-reported violence at school correlated positively with valuing self-direction and not with valuing tradition. Using the refined values, we might propose more precise hypotheses—a positive association of school violence with self-direction-action but not with self-direction thought and a negative association of school violence with humility but not with the narrower tradition value. Testing these hypotheses would yield substantially greater insight into relations between value priorities and school violence.

The larger the number of basic values one distinguishes, the more complex the value theory may seem to be. This is not the case, however. The key theoretical proposition—

values form a circular motivational continuum—is unchanged. The finer partitioning of the continuum provides researchers with more precise empirical tools to address questions involving values. It does not make the theory more complex. With the more refined values, as with the original 10, researchers may choose to distinguish as many or as few values as they need to understand the phenomena in question. Like the original 10 values, the refined values can be combined into four higher order values or even into two dimensions (Schwartz et al., 2012). Choosing the desirable precision of value measurement might be thought of as parallel to choosing whether to measure length with meters, centimeters, or millimeters. Researchers may prefer different degrees of precision depending on the questions they address.

PVQ40 data are available from many studies which tested hypotheses about direct or indirect relations of values with other variables or the mediating or moderating effects of values. These studies generated hypotheses and tested them based on ten or fewer values. The current study implies that more can be learned by reanalyzing the data of these studies, using the finer distinctions among values presented here that are theoretically relevant.⁵ The fact that the refined values were not always discriminable in every sample suggests that researchers who find that refined values provide additional insight in their analyses should assess the discriminability of those values in their data.

The more narrowly defined components of the broad values may yield theoretically meaningful, strong, and informative findings where the broad values yielded surprising, weak, or ambiguous findings. We hope this article will encourage researchers to generate new hypotheses and to mine available PVQ40 data in search of deeper and more insightful understandings of the antecedents and consequences of values and their function as mediators and moderators.

⁵ The last column in Table 1 lists the PVQ40 items that measure each refined value.

References

Beierlein, C., Davidov, E., Schmidt, P., Schwartz, S. H., & Rammstedt, B. (2012). Testing the discriminant validity of Schwartz' Portrait Value Questionnaire items – A replication and extension of Knoppen and Saris (2009). *Survey Research Methods*, 6, 25-36.

Berzonsky, M. D., Cieciuch, J., Duriez, B., & Soenens, B. (2011). The how and what of identity formation: Associations between identity styles and value orientations. *Personality and Individual Differences*, 50, 295-299.

Bilsky, W., Janik, M., & Schwartz, S. H. (2011). The structural organization of human values: Evidence from three rounds of the European Social Survey (ESS). *Journal of Cross-Cultural Psychology*, 42, 759-776.

Caprara, G. V., Barbaranelli, C., Borgogni, L., & Perugini, M. (1993). The 'Big Five Questionnaire': A new questionnaire to assess the five factor model. *Personality and Individual Differences*, 15, 281–288.

Cieciuch, J., & Schwartz, S. H. (2012). The number of distinct basic values and their structure assessed by PVQ-40. *Journal of Personality Assessment*, 94, 321-328.

Costa, P. T., Jr., & McCrae, R. R. (1992). *Revised NEO Personality Inventory (NEO-PI-R) and NEO Five Factor Inventory (NEO-FFI) professional manual*. Odessa, FL: Psychological Assessment Resources.

Davidov, E., Schmidt, P., & Schwartz, S. H. (2008). Bringing values back in: The adequacy of the European social survey to measure values in 20 countries. *Public Opinion Quarterly*, 72, 420-445.

Döring, A.K., Blauensteiner, A., Aryus, K., Drögekamp, L. & Bilsky, W. (2010). Assessing values at an early age: the picture-based value survey for children. *Journal of Personality Assessment*, 92, 439-448.

- Knafo, A., Daniel, E., and Khoury-Kassabri, M. (2008). Values as protective factors against violent behavior in Jewish and Arab high schools in Israel. *Child Development*, 79, 652-667.
- Lee, J. A., Soutar, G., & Louviere, J. (2008). An alternative approach to measuring Schwartz's values: The best-worst scaling approach. *Journal of Personality Assessment*, 90, 335-347.
- Muthen, L. K., & Muthen, B. O. (2010). *Mplus User's guide. Sixth edition*. Los Angeles: Muthen and Muthen.
- Popper, K., R. (1976). The myth of the framework. In: E. Freeman (Ed.) *The abdication of philosophy - Philosophy and the public good: Essays in honor of Paul Arthur Schilpp* (pp. 23-48). LaSalle, IL: Open Court.
- Roccas, S., Sagiv, L., Schwartz, S., H., & Knafo, A. (2002). The big five personality factors and personal values. *Personality and Social Psychology Bulletin*, 28, 789-801.
- Rokeach, M. (1973). *The nature of human values*. New York: Free Press.
- Saris, W. E., & Gallhofer, I. N. (2007). *Design, evaluation, and analysis of questionnaires for survey research*. Hoboken, NJ: Wiley.
- Saris, W. E., Knoppen, D., & Schwartz, S. H. (in press). Operationalizing the theory of human values: Balancing homogeneity of reflective items and theoretical coverage. *Survey Research Methods*.
- Schwartz, S. H. (1992). Universals in the content and structure of values: Theory and empirical tests in 20 countries. In M. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 25, pp. 1-65). New York: Academic Press.
- Schwartz, S. H. (2003). Value orientations. *European social survey core questionnaire development*, Ch. 7. At

[http://www.europeansocialsurvey.org/index.php?option=com_docman&task=cat_view
&gid=83&Itemid=80](http://www.europeansocialsurvey.org/index.php?option=com_docman&task=cat_view&gid=83&Itemid=80)

Schwartz, S. H. (2006). Les valeurs de base de la personne: Théorie, mesures et applications [Basic human values: Theory, measurement, and applications]. *Revue Française de Sociologie*, 47, 249-288.

Schwartz, S. H., & Bilsky, W. (1987). Toward a universal psychological structure of human values. *Journal of Personality and Social Psychology*, 53, 550-562.

Schwartz, S. H., Cieciuch, J., Vecchione, M., Davidov, E., Fischer, R., Beierlein, C., Ramos, A., Verkasalo, M., Lönnqvist, J.-E., Demirutku, K., Dirilen-Gumus, O., & Konty, M. (2012). Refining the theory of basic individual values. *Journal of Personality and Social Psychology*, 103, 663-688.

Schwartz, S., & Rubel, T. (2005). Sex differences in value priorities: Cross-cultural and multimethod studies. *Journal of Personality and Social Psychology*, 89, 1010-1028.

Schwartz, S.H., & Sagiv, L. (1995). Identifying culture specifics in the content and structure of values. *Journal of Cross-Cultural Psychology*, 26, 92-116.

Schwartz, S. H., Sagiv, L., & Boehnke, K. (2000). Worries and values. *Journal of Personality*, 68, 309-346.

Trivers, R. L. (1972). Parental investment and sexual selection. In B. Campbell (Ed.), *Sexual selection and the descent of man* (pp. 136–179). Chicago: Aldine.

Table 1.

The ten basic values and potential refined values in the PVQ-40

10 basic values	Definitions of 10 basic values	19 values in the refined values theory	16 potentially distinguishable values in the PVQ-40 with their indicator items
Self-Direction	Independent thought and action—choosing, creating, and exploring	Self-Direction—Thought (the freedom to cultivate one's own ideas and abilities)	Self-Direction—Action (sd11, sd34)
		Self-Direction—Action (the freedom to determine one's own actions)	Self-Direction—Thought (sd1, sd22)
Stimulation	Excitement, novelty, and challenge in life	Stimulation—Definition unchanged	Stimulation (st6, st15, st30)
Hedonism	Pleasure and sensuous gratification for oneself	Hedonism—Definition unchanged	Hedonism (he10, he26, he37)
Achievement	Personal success through demonstrating competence according to social standards	Achievement—Definition unchanged	Ambition (ac24, ac32)
			Demonstrating success (ac4, ac13)

Power	Social status and prestige, control or dominance over people and resources	Power—Dominance (power through exercising control over people)	Power (po2, po17, po39)
		Power—Resources (power through control of material and social resources)	
		Face (security and power through maintaining one’s public image and avoiding humiliation)	
Security	Safety, harmony and stability of society, relationships, and self	Security—Personal (safety in one’s immediate environment)	Personal Security (se5, se21, se31)
		Security—Societal (safety and stability in the wider society)	Societal Security (se14, se35)
Conformity	The restraint of actions, inclinations, and impulses that are likely to upset or harm others and violate social expectations or norms	Conformity—Rules (compliance with rules, laws, and formal obligations)	Conformity—Rules (co7, co28)
		Conformity—Interpersonal (avoidance of upsetting or harming other people)	Conformity—Interpersonal (co16, co36)
Tradition	Respect, commitment and acceptance of the customs and ideas that traditional culture or religion provides	Tradition (maintaining and preserving cultural, family or religious traditions)	Tradition (tr20, tr25)
		Humility (recognizing one’s insignificance in the larger scheme of things)	Humility (tr9, tr38)

Benevolence	Preservation and enhancement of the welfare of people with whom one is in frequent personal contact	Benevolence—Dependability (being a reliable and trustworthy member of the ingroup)	Benevolence (be12, be18, be27, be33)
		Benevolence—Caring (commitment to the welfare of ingroup members)	
Universalism	Understanding, appreciation, tolerance and protection for the welfare of <i>all</i> people and of nature	Universalism—Concern (commitment to equality, justice and protection for all people)	Universalism—Concern (un3, un8, un23, un29)
		Universalism—Nature (preservation of the natural environment)	Universalism—Nature (un19, un40)
		Universalism—Tolerance (acceptance and understanding of those who are different from oneself)	

Table 2.
Description of the samples in the study

Country	N	Percent Female	Mean Age (Std Dev)	Mean years of education (sd) ^a	Mean household income (sd) ^b
Australia	285	53.6%	36.1 (13.9)	16.6 (3.6)	3.7 (2.1)
Brazil	997	56.3%	34.1 (9.0)	16.6 (3.8)	1.8 (1.0)
Chile	415	50.0%	43.3 (13.4)	15.9 (4.2)	3.8 (2.1)
Finland	449	68.2%	40.1 (13.2)	16.2 (4.3)	4.0 (2.0)
Germany	1066	46.5%	53.9 (16.4)	14.6 (4.4)	4.0 (2.1)
Greece	375	48.5%	41.9 (12.1)	15.3 (3.5)	3.3 (1.7)
Israel	478	56.9%	38.6 (12.7)	15.6 (3.0)	3.8 (1.8)
Italy	564	55.8%	38.7 (13.9)	15.3 (3.7)	3.9 (1.6)
Slovakia	487	51.0%	47.7 (14.6)	14.4 (3.3)	4.7 (1.8)
Spain	420	53.8%	37.7 (14.8)	16.4* (4.2)	3.8 (1.3)
Ukraine	740	48.3%	41.1 (12.5)	14.0 (3.3)	4.3 (1.8)
United Kingdom	471	64.2%	36.6 (12.1)	15.8* (4.3)	2.7 (1.6)
United States	544	55.9%	32.6 (14.4)	14.0 (2.2)	4.4 (1.9)

Notes. ^a Includes compulsory years of schooling; ^b Income was measured with the following scale:
1 = very much above the average of your country, 2 = above the average, 3 = a little above average,
4 = about average, 5 = a little below the average, 6 = below the average, 7 = very much below the
average.

*Estimates based on highest level of educational attainment.

Table 3.

Summary of value structures obtained with a theory-based multidimensional scaling analysis in each country

Country	Stress- I	# Distinct Regions	Sequence of Values*	Misplaced Items
Australia	.197	10	1,2,3/4,5,6,7,8,9,10	St6 in SD; Po39 in AC
Brazil	.163	10	1,2,3/4/5,6,7,8,9,10	Un23 in BE; Un40 in BE; Po39 in AC
Chile	.190	10	1,2, 3/4/5, 6/7, 8, 9, 10	Un3 and Un8 in BE
Finland	.189	10	1,2,3,4,5,6,7,8,9,10	Tr25 in SEC; Po39 in AC; St6 in SD
Germany	.144	10	1,2,3/4/5,6,7,8,9,10	Se5 in CO; Po39 in AC; He26 in ST
Greece	.166	10	1,2,3/4,5,6,7,8,9,10	Se21 in CO; St15 in HE
Israel	.181	10	1,2,3/4,5,6,7,8,9,10	Po39 in AC; St6 in SD
Italy	.126	9	1+2,3/4,5,6,7,8,9,10	Co16 in SEC; He10 in ST; Po39 in AC
Slovakia	.141	10	1,2,3/4,5,6,7,8,9,10	Be27 in UN
Spain	.161	9	1,2,3/4/5,6,7,8+9,10	Tr38 in BE; Un29 in BE
Ukraine	.167	10	1/2,3/4/5,6,7,8,9,10	Po39 in AC; Co28 in UN; Be33 in UN
United Kingdom	.171	10	1,2,3/4/5,6/7,8,9,10	Un40 in BE; Tr25 in CO; Po39 in AC
United States	.199	9	1,2,3/4,5,6,7,8+9,10	Be18 in UN

*Note: 1=Universalism (UN); 2=Benevolence (BE); 3=Tradition (TR); 4=Conformity (CO);

5=Security (SE); 6=Power (PO); 7=Achievement (AC); 8=Hedonism (HE); 9=Stimulation (ST);

10=Self-direction (SD).

x/y indicates that x is in a peripheral position and y in a central position.

x+y indicates that x and y are mixed in one sector.

For the PVQ40 items, see Schwartz, 2003.

Table 4. Global fit measures for the confirmatory factor analyses of self-transcendence values

	Model 1: Latent variables UN, BE (34df)				Model 2: Latent variables: UNN, UNS, BE (32df)				Model 3: Model 2 plus UNN/UNS correlation fixed to 1 (33df)				Model 3 minus 2 (1df)	
	CFI	SRMR	RMSEA	χ^2	CFI	SRMR	RMSEA	χ^2	CFI	SRMR	RMSEA	χ^2	$\Delta\chi^2$	$p <$
Australia	.856	.075	.107 (.09-.13)	144.1	.935	.057	.074 (.05-.04)	81.5	.866	.071	.104 (.09-.12)	135.0	53.5	.001
Brazil	.893	.052	.090 (.08-.10)	310.3	.938	.040	.071 (.06-.08)	191.5	.902	.049	.087 (.08-.10)	284.6	93.1	.001
Chile	.842	.063	.107 (.09-.12)	194.4	.949	.043	.062 (.05-.08)	83.7	.846	.062	.107 (.09-.12)	189.3	105.6	.001
Finland	.805	.077	.127 (.11-.14)	297.9	.942	.052	.072 (.06-.09)	105.5	.805	.077	.129 (.12-.14)	279.0	174.4	.001
Greece	.831	.063	.106 (.09-.12)	177.7	.942	.045	.064 (.05-.08)	81.3	.843	.060	.104 (.09-.12)	166.4	85.1	.001
Germany	.904	.048	.085 (.08-.09)	296.8	.949	.039	.064 (.06-.07)	173.1	.910	.046	.084 (.08-.09)	279.8	106.7	.001
Israel	.836	.067	.108 (.10-.11)	224.9	.905	.056	.085 (.07-.10)	142.7	.841	.065	.108 (.10-.12)	218.2	75.5	.001
Italy	.905	.053	.094 (.08-.11)	203.0	.960	.039	.063 (.05-.08)	103.1	.923	.048	.086 (.07-.10)	169.3	66.2	.001
Slovakia	.921	.043	.074 (.06-.09)	125.7	.969	.031	.048 (.03-.06)	68.1	.922	.043	.075 (.06-.09)	124.1	56.0	.001
Spain	.919	.050	.085 (.07-.10)	137.5	.975	.034	.049 (.03-.07)	64.5	.931	.045	.080 (.07-.10)	121.5	57.0	.001
Ukraine	.966	.030	.045 (.03-.06)	83.9	.990	.023	.026 (.01-.04)	47.6	.977	.027	.037 (.02-.05)	65.9	18.3	.001
UK	.897	.060	.104 (.09-.12)	205.9	.948	.048	.076 (.06-.09)	118.8	.897	.059	.105 (.09-.12)	203.9	85.1	.001
USA	.874	.060	.098 (.09-.11)	209.9	.933	.045	.073 (.06-.09)	125.6	.880	.057	.096 (.08-.11)	199.7	74.1	.001

Table 5. Global fit measures for the confirmatory factor analyses of self-enhancement and openness to change values

	Self Enhancement: Latent variables HE, AC-A, AC-S, PO						Openness to Change: Latent variables HE, ST, SD-A, SD-T					
	Model 2 for (29df)				Model 3 minus Model 2 (1df)		Model 2 for (df=29)				Model 3 minus Model 2 (1df)	
	CFI	SRMR	RMSEA	χ^2	$\Delta\chi^2$	p<	CFI	SRMR	RMSEA	χ^2	$\Delta\chi^2$	p<
Australia	.910	.066	.113	134.2	26.6	.001	.944	.047	.074	74.1	91.6	.001
Brazil	.915	.076	.102	328.9	46.1	.001	.954	.040	.064	148.1	175.8	.001
Chile	.974	.035	.050	59.4	5.6	.05	.971	.030	.047	55.4	63.9	.01
Finland	.939	.072	.095	146.0	2.1	ns	.939	.044	.080	112.1	129.4	.001
Germany	.946	.043	.072	190.8	54.1	.001	.850	.063	.106	378.0	387.3	.01
Greece	.957	.044	.072	85.6	9.6	.01	.917	.049	.082	101.3	121.8	.001
Israel	.948	.064	.089	139.5	41.4	.001	.950	.043	.075	107.2	136.6	.001
Italy	.958	.048	.081	134.7	19.3	.001	.954	.037	.070	107.4	130.8	.001
Slovakia	.955	.044	.075	108.1	3.7	ns	Not possible to differentiate.					
Spain	.954	.051	.071	90.0	19.3	.001	.955	.038	.066	82.6	87.8	.05
Ukraine	Not possible to differentiate						Not possible to differentiate.					
United Kingdom	.945	.056	.089	137.0	75.2	.001	.951	.037	.075	106.6	114.4	.01
United States	.892	.079	.111	225.0	6.6	.05	.944	.041	.073	113.1	131.0	.001

Table 6. Global fit measures for the confirmatory factor analyses of conformity, tradition, and security.

	<u>Conformity-Interpersonal & Conformity-Rules</u>							<u>Tradition & Humility</u>						<u>Societal Security & Personal Security</u>						
	Model 2 (1df)				Model 3 minus Model 2 (1df)			Model 2 (1df)				Model 3 minus Model 2 (1df)			Model 2 (4df)			Model 3 minus Model 2 (1df)		
	CFI	SRMR	RMSEA	χ^2	$\Delta\chi^2$	p<	CFI	SRMR	RMSEA	χ^2	$\Delta\chi^2$	p<	CFI	SRMR	RMSEA	χ^2	$\Delta\chi^2$	p<		
Australia	.959	.031	.172	9.5	7.9	.01	.993	.014	.046	1.6	8.2	.01	.937	.033	.098	14.9	7.3	.01		
Brazil	.961	.026	.141	21.0	3.9	.05	1.00	.003	.000	.2	2.7	ns	.989	.018	.042	11.2	18.1	.001		
Chile	Not possible to differentiate						.965	.021	.090	4.3	1.3	ns	1.00	.000	.000	0.8	0.0	ns		
Finland	.965	.028	.166	13.3	17.6	.001	1.00	.007	.000	.4	.1	ns	.998	.017	.021	4.8	21.1	.001		
Germany	Not possible to differentiate						.999	.007	.019	1.4	44.3	.001	.995	.015	.039	10.4	20.8	.001		
Greece	1.00	.008	.000	.8	2.9	ns	.998	.001	.004	1.6	12.4	.001	.957	.030	.087	15.3	1.5	ns		
Israel	Not possible to differentiate						1.00	.005	.000	.5	37.0	.001	.982	.020	.058	10.4	16.4	.001		
Italy	.932	.033	.164	15.9	.4	ns	1.00	.000	.000	.0	12.7	.001	.993	.015	.040	7.5	29.3	.001		
Slovakia	Not possible to differentiate						1.00	.003	.000	.1	5.6	.05	1.00	.013	.000	2.3	17.1	.001		
Spain	Not possible to differentiate						.964	.024	.112	6.2	13.7	.001	.965	.029	.078	14.2	.08	ns		
Ukraine	Not possible to differentiate						1.00	.004	.000	.4	2.4	ns	.976	.021	.059	14.2	34.6	.001		
UK	.939	.037	.215	22.8	.4	ns	1.00	.004	.000	.2	18.2	.001	.926	.040	.132	36.8	3.8	.05		
USA	.975	.023	.124	9.4	.0	ns	.996	.011	.032	1.6	5.8	ns	1.00	.012	.000	2.1	62.0	.001		

Table 7. Mean importance of broad security values and of personal and societal security among men and women

	<u>Broad Security</u>			<u>Personal Security</u>			IoQ	<u>Societal Security</u>			
	men	women	<i>F</i> (Eta ²)	men	women	<i>F</i> (Eta ²)		men	women	<i>F</i> (Eta ²)	IoQ
Australia	.05	.05	.01	.06	.18	1.5	.71	.04	-.15	2.7	.79
Brazil	.04	.07	0.6	.08	.17	3.1	.71	-.01	-.06	0.6	.79
Chile	.24	.39	6.1* (.02)	.34	.54	8.3** (.02)	.74	.28	.18	1.2	.82
Finland	.24	.24	0.1	.07	.13	0.4	.72	.50	.43	0.4	.85
Germany	.37	.48	8.7** (.01)	.24	.34	4.6* (.04)	.77	.56	.69	7.1** (.01)	.87
Greece	.00	.27	12.5*** (.03)	.08	.40	15.5*** (.04)	.65	-.13	.09	3.2	.83
Israel	.18	.21	0.2	-.22	.06	12.4*** (.03)	.68	.78	.45	14.2*** (.03)	.86
Italy	.09	.25	6.2* (.01)	.08	.25	5.8* (.01)	.77	.12	.24	2.4	.84
Slovakia	.23	.41	11.0** (.02)	.40	.68	21.3*** (.04)	.70	-.02	.01	0.1	.79
Spain	.05	.05	0.01	.15	.20	0.6	.64	-.10	-.17	0.5	.83
Ukraine	.18	.20	0.2	.28	.38	3.6 (t)	.72	.04	-.07	1.9	.79
United Kingdom	.05	.11	0.6	.16	.20	0.3	.73	-.10	-.03	0.5	.84
USA	.04	.11	2.2	.02	.26	16.6*** (.03)	.74	.07	-.12	4.9* (.01)	.80
<i>M</i> (Unweighted)	.14	.22		.13	.29		.71	.16	.11		.82
Mean Effect Sizes		.16			.23				.01		

****p* < .001, ***p* < .01, **p* < .05

Table 8.
Correlations of identity styles with three broad values and with their refined value components ($N = 1078$)

Identity Style	Broad Value	Narrowly Defined Values	
Informational	Self-Direction	Self-Direction-Thought	Self-Direction-Action
	.11***	.21***	-.02
Normative	Tradition	Humility	Tradition
	.25***	.06	.34***
Diffuse-Avoidant	Achievement	Achievement-Demonstrating Success	Achievement-Ambition
	-.00	-.08**	.07*

Note. The correlations with the three broad values are from Berzonsky et al. (2011) and the correlations with the narrowly defined values are based on data from that source.

*** $p < .001$, ** $p < .01$, * $p < .05$

Table 9.

Correlations of three five-factor model personality traits with three broad values and with their refined components in Chile and Poland

	Chile (N=415)	Poland (N=407)	Reported in Roccas et al., 2002
Openness to Experience with			
Self-direction	.24***	.29***	.48***
Self-direction-Thought	.33***	.36***	
Self-direction-Action	.03	.08	
Agreeableness with:			
Universalism	.29***	.30***	.15**
Universalism-Concern	.38***	.38***	
Universalism-Nature	.02	.04	
Extraversion with Tradition			
Tradition	-.19***	-.33***	-.29***
Tradition (narrow)	-.08	-.14**	
Humility	-.23***	-.39***	

*** $p < .001$, ** $p < .01$, * $p < .05$

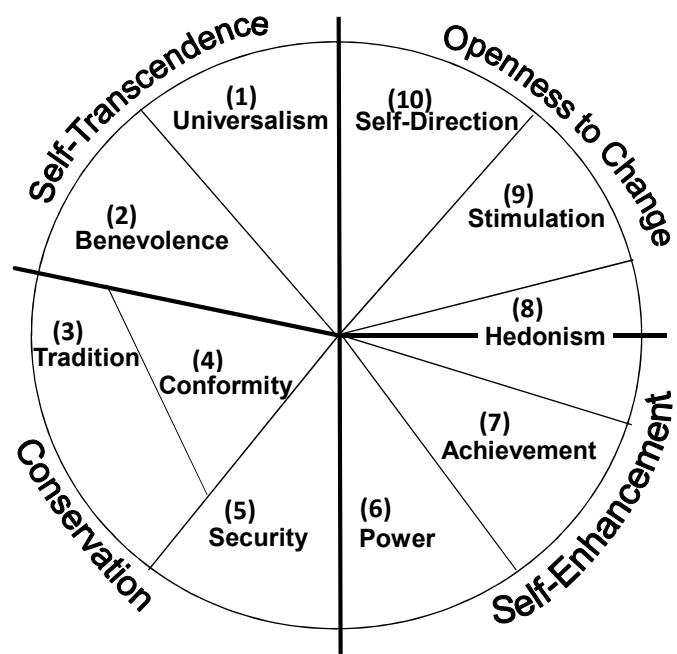


Figure 1a. Circular motivational continuum of 10 values in the original value theory (Schwartz, 1992)

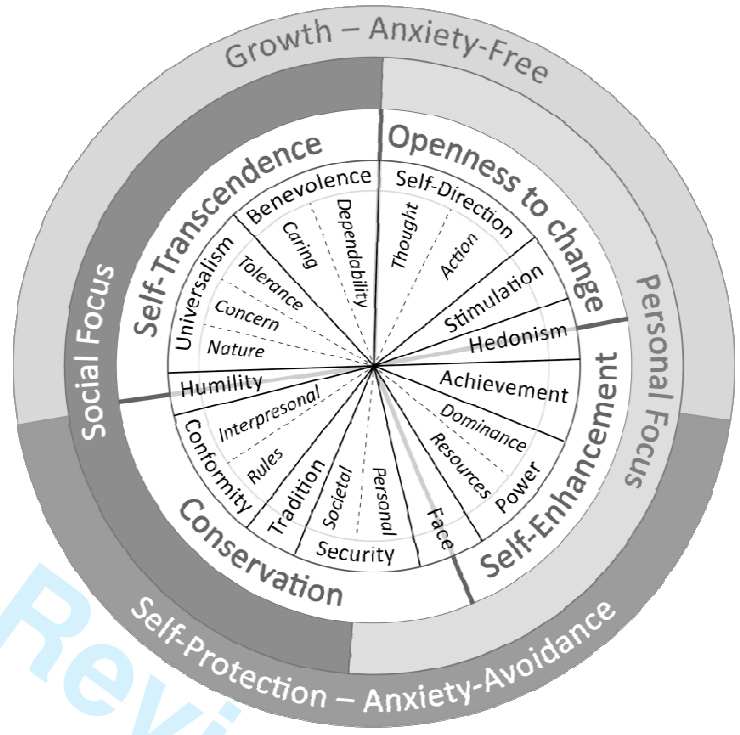


Figure 1b. Figure 1. Circular motivational continuum of 19 values in the refined value theory (Schwartz et al., 2012).

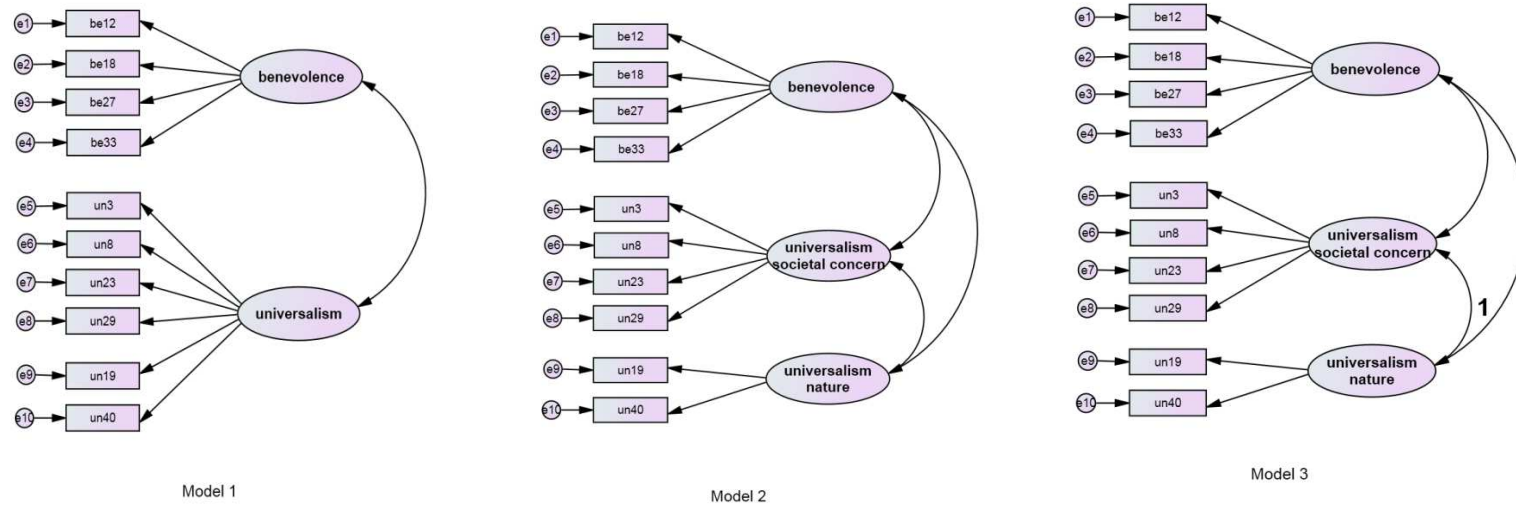


Figure 2. Confirmatory factor analysis models for self-transcendence.